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NAVAL POSTGRADUATE SCHOOL
Monterey, California

THESIS

THE ECONOMIC DEVELOPMENT OF SINGAPORE

by

Poh Huat Quek

June 1974

Thesis Advisor: K. Terasawa

Approved for public release; distribution unlimited.

Thesis
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This thesis gives a comprehensive account of how the Republic of Singapore has achieved its present status and of the formidable social and economic problems confronting its government and people during these troubled days of world economic and monetary instability. An examination of economic literature on economic development and growth models for developing countries reveals that the answer to Singapore's development problems may well lie in

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industrialization, export promotion, tertiary sector expansion, fiscal measures, financing incentives and other promotional activities. These measures are described thoroughly and their effects are calculated.

The increasing annual growth rates of Singapore's manufactured exports and the spreading diversification with regard to products and trading partners must be attributed, at least partly, to the strategy of economic development being currently pursued by its government. Further success will depend on how well Singapore weathers the buffeting waves of regional as well as international disorders in the years to come.

The Economic Development of Singapore

by

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
June 1974

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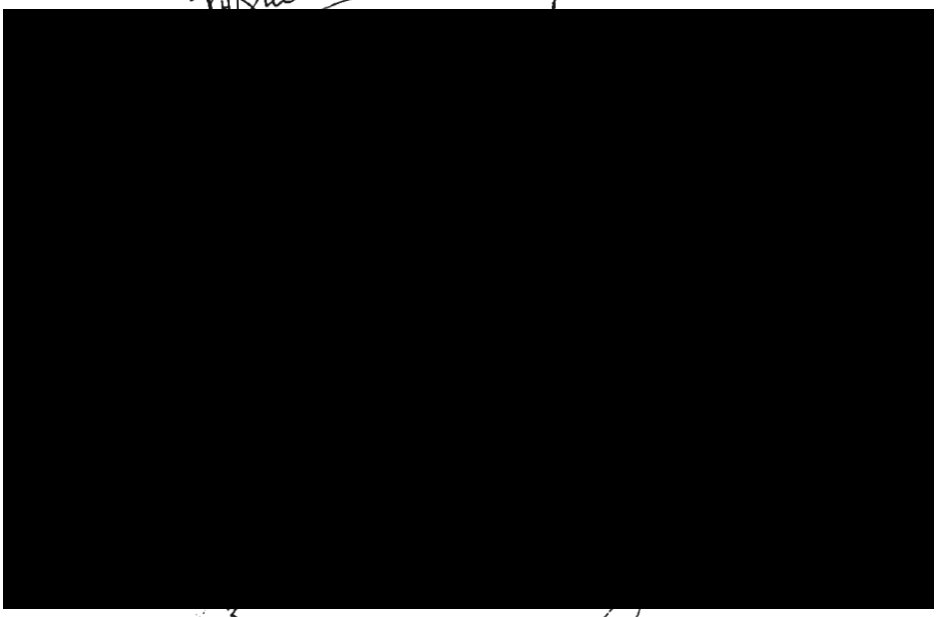

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ABSTRACT

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I. INTRODUCTION AND BACKGROUND

A. INTRODUCTION

To most U.S. military personnel who served in Vietnam, Singapore is merely an R&R center. Those who chose to spend their week's leave there come to know it as a clean city with relatively cheap open-air eating stalls and luxurious hotel accommodations. It is indeed surprising that Singapore, being such a close neighbor to Indonesia, Thailand and the Philippines, has had very little attention paid to it by western journalists. This in fact may be a good sign, reflecting the relative political calm in the island-state. Southeast Asia being as it is today, Vietnam and Cambodia with all their insurgency problems continue to dominate the world news headlines. During the past forty years Southeast Asia has known very little peace, and even less prosperity. The eleven countries which make up this part of the world, from Burma to the Philippines, contain nearly 300 million people. The region's distinctive character lies in its strategic importance in world politics, its extreme cultural and religious diversity, and its widespread poverty. Its unity is the unity of an imperialist domain – colonized, exploited and discarded by its masters. In the beginning, the Dutch, French, Portuguese and British all vaunted their authority over the natives of the region and repatriated immense wealth back to their European shores. Their withdrawal

from the region came none too soon as the 'new' imperialisms of Russia, the U.S. and Japan rushed in to stake their claims on newly discovered natural resources, such as oil, and to share in the fruits of Southeast Asia's economic progress. This new 'invasion' has engulfed the region in a struggle between this neo-imperialism, communism and chauvinism.

Culturally, Southeast Asia is a shatter-belt between Asia's three major cultures – the Indian, the Chinese and the Malay – and this meeting of peoples has caused as much conflict as it has fusion.

Economically, one of the major common denominators is that of poverty. Southeast Asian poverty provided the back-drop for Gunnar Myrdal's 'Asian Drama'[13] – a three volume inquiry into the poverty of nations. Two fundamental disparities underlie economic life in Southeast Asia: the disparity between colonial forms of exploitation and peasant agriculture, and the disparity between urban concentration of wealth, enterprise, and technology and large scale rural poverty. Socio-economic discontent inevitably has led to political upheaval within every country in the region. Since the 1930's, political conflict in Southeast Asia has been fundamentally a revolt of the dispossessed against those in economic and political control.

Between 1945 and 1960, nation after nation gained independence under conditions of considerable domestic instability. However, in most of these 'new nations' opposition

to foreign political control, in itself, could not sustain independence. Too often, the tenuous political autonomy gained was not, and could not be, followed by sustained and integral programmes of national development. The over-riding logic of colonial economies could not be defeated, the new local elites in power were frequently cast in the same mould as the old and easily influenced by Western pressure, while internal factionalism and unrest increased rather than diminished. The basic problems remained. Except in North Vietnam, independence did not lead to essential structural changes within the economic and social order. Some nations – notably Burma and Indonesia – nationalized foreign interests, only to find more pressing problems defeating the whole purpose of the exercise. Most nations remained dependent and poor, strongly disparate economically and socially, beset by cultural and communal conflict, and polarized politically between right-wing regimes or shaky coalitions on the one hand and strong left-wing movements on the other. Only North Vietnam has remained an effective socialist state; Cambodia retained its distinctive Royal Khmer socialist government, and relative peace, until 1970; Soekarno's tenuous NASAKOM coalition collapsed in 1965; and only recently Thailand's right-wing government was toppled by dissident students. Guerilla forces in Laos, Vietnam and Cambodia are now united in a common Indochinese people's liberation movement.

It is in relation to these events that the situation in Malaysia, Singapore and Indonesia is of particular importance. Here, there has been a hardening of Western colonial-style exploitation. Socialist movements in all three territories have been suppressed. Communalism instead is the threatening force, with the latent Malay-Chinese feud being the primary potential source of ignition. Only recently, Indonesia found itself in the throes of another anti-Oriental movement which disrupted Japan's Premier Tanaka's visit to Jakarta. Ever since the migration of the overseas Chinese from China into Southeast Asia, and the Malay world in particular, the Malays have had to take a back seat in their own countries and surrender the reins of economic power to the 'outsiders'. With the flush of nationalism rising up again from the dust in these countries, it is well in the bounds of possibility that the deep-seated socio-economic discontent may explode in a communal blood-bath and in the consolidation of Malay authoritarianism over the region. The other new nations of Southeast Asia are also no longer prepared to tolerate in their midst large undigested Chinese minorities, and if the local Chinese communities cannot accept such changes, neither Peking nor Taipei can save them.

Given this volatile situation, the position of Singapore is clearly intensely vulnerable. The Chinese in Singapore are numerically in the majority and the only future for them is as Singaporeans. A distinctive Singapore image

would have to be cultivated, stressing the multicultural origins of its society and that, for the Singaporean, being Chinese is purely incidental. The city-state simply cannot afford racial strife. The Chinese in Southeast Asia have proved to be a remarkably resilient group and their present status is largely the result of past colonial policy; in all probability, they will adjust to the demands of nationalism just as they did to those of imperialism. Their enterprise, skill and business acumen are sorely needed in the implementation of every country's development plans.

Although a high rate of economic growth is not sufficient to enable Southeast Asia either to counteract pressure from the troubled giant from the north or to contain communist subversion from within, it must surely be judged basic for any hope of successful resistance. Furthermore, the fangs of communalism can only be blunted by the economic upgrading of the status of the deprived, be they Malays, Indians or Punjabis. Fortunately, Southeast Asia already includes some countries whose rate of economic growth must be considered very creditable by any standards. Examples are Malaysia, Singapore and Thailand. It is significant that nearly all the newly independent nations created since World War II have maintained their adhesion to the largely free economy of the West. A few, either because of their political philosophies or because they have been dissatisfied with the prices received for their products, have

diverted a substantial part of their trade towards the communist world. North Vietnam, Burma and Indonesia are in this group. However, for Indonesia, the decision after 1963 to enlarge the share of its trade with the Eastern bloc and with the Third World materially hastened its progress towards bankruptcy.

Examination of most economic criteria strongly suggests a division of Southeast Asia into two major economic units, Malaysia and Singapore, Thailand and the Philippines on the one hand, Burma, Indonesia and the Indochinese states on the other (Table I and Figure 1). This division is also basic in the socio-political field. The first group consists of countries that are 'outward looking'. They recognize that they are part of a wider world to which they must

	Aggregate Product Percentage		Per Capita Product Percentage	
	1955-60	1960-65	1955-60	1960-65
Burma	5.7	2.3	3.7	0.2
Cambodia	8.2	5.0	5.9	2.7
Indonesia	3.9	2.6	1.8	0.2
West Malaysia	4.1	6.2	0.9	3.1
Philippines	4.5	4.6	1.4	1.2
Thailand	5.0	7.0	2.0	3.9

TABLE I.

Southeast Asia: Average Annual Rates of Growth of GDP at constant prices, 1955-1965.

Source: United Nations, "Economic Survey of Asia and the Far East, 1966".

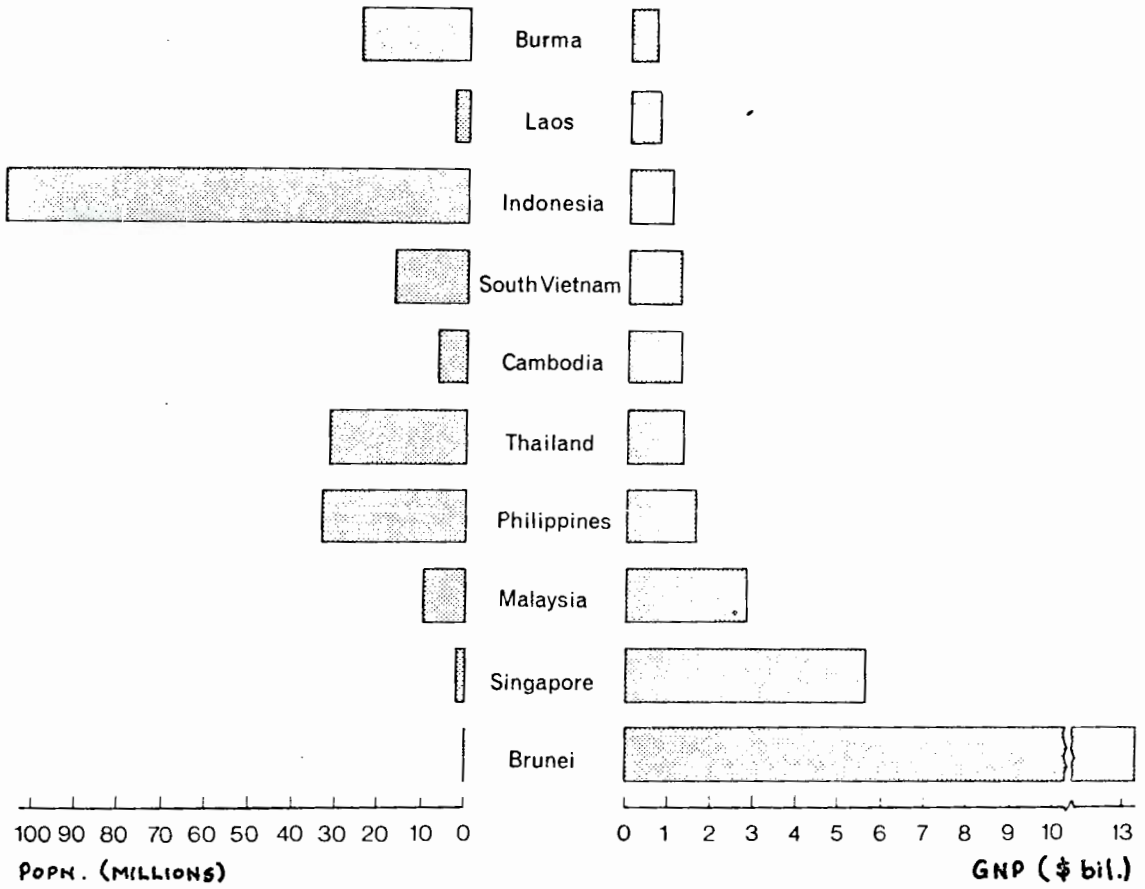


FIGURE 1. Estimated Population and Gross National Product, per capita 1966

Source: World Bank Atlas, 3rd Edition, 1969.

make adjustments; they have been active in promoting schemes for regional cooperation and integration; and on all major world issues involving a confrontation of the Western and the Communist powers, they have tended to support the West. The second group consists of 'inward looking' countries; economic growth has never been accorded a high degree of priority by their governments, which have tended doctrinaire rather than pragmatic policies and have concerned themselves more with the preservation of existing cultural values than with accomodation to the modern world. Whatever their political institutions, the problem of stagnating production must be faced sooner or later, and by 1967 both Burma and Indonesia had come to accept the necessity for Western aid, and to realize that fundamental changes in their economic policies were mandatory.

In this context therefore Singapore's economy was nurtured, and grew to become an important, integral component of the world economy. Preliminary figures compiled by the government show that the island-state has done well for 1973, comfortably over 10% growth in G.D.P. over 1972. But for 1974, and the years ahead, the picture is not so rosy. The main uncertainty existing today is that of coping with the oil cutback and the effects of the oil embargo on the big industrial countries – America, Western Europe and Japan. Trade between the industrial countries, and between them and developing countries like Singapore, will decrease

should there be reductions in the manufactured output of the industrialized nations and inevitably the less developed countries will be hurt most by such adverse trade developments. Singapore has neither oil or coal or any natural resources. Nor does she produce commodities which can take advantage of dearer petro-chemicals. It imports much of its intermediate inputs for its factories from the developed countries of the West and Japan, and exports much of its manufactured products to the same countries. It therefore is simply not possible for Singapore to insulate its economy from the effects of the oil crisis.

What then are the courses open to Singapore's policy-makers as they contemplate the future growth of the island's economy? Is it possible and desirable for Singapore to work towards a more independent and diversified economy? It is certainly desirable that dependence is lessened in the next decade, but whether it is possible will depend as much upon the changing geopolitical situation Singapore finds itself within as upon local government policy. To understand the obstacles to growth, a close look at the present socio-economic structure of Singapore, and the main problems and bottlenecks inherent in this structure, is necessary. In addition, it is necessary to assess the country's economic performance since the 1950's, and examine the role of private enterprise and public development planning in Singapore's growth. Only then can the above questions be answered.

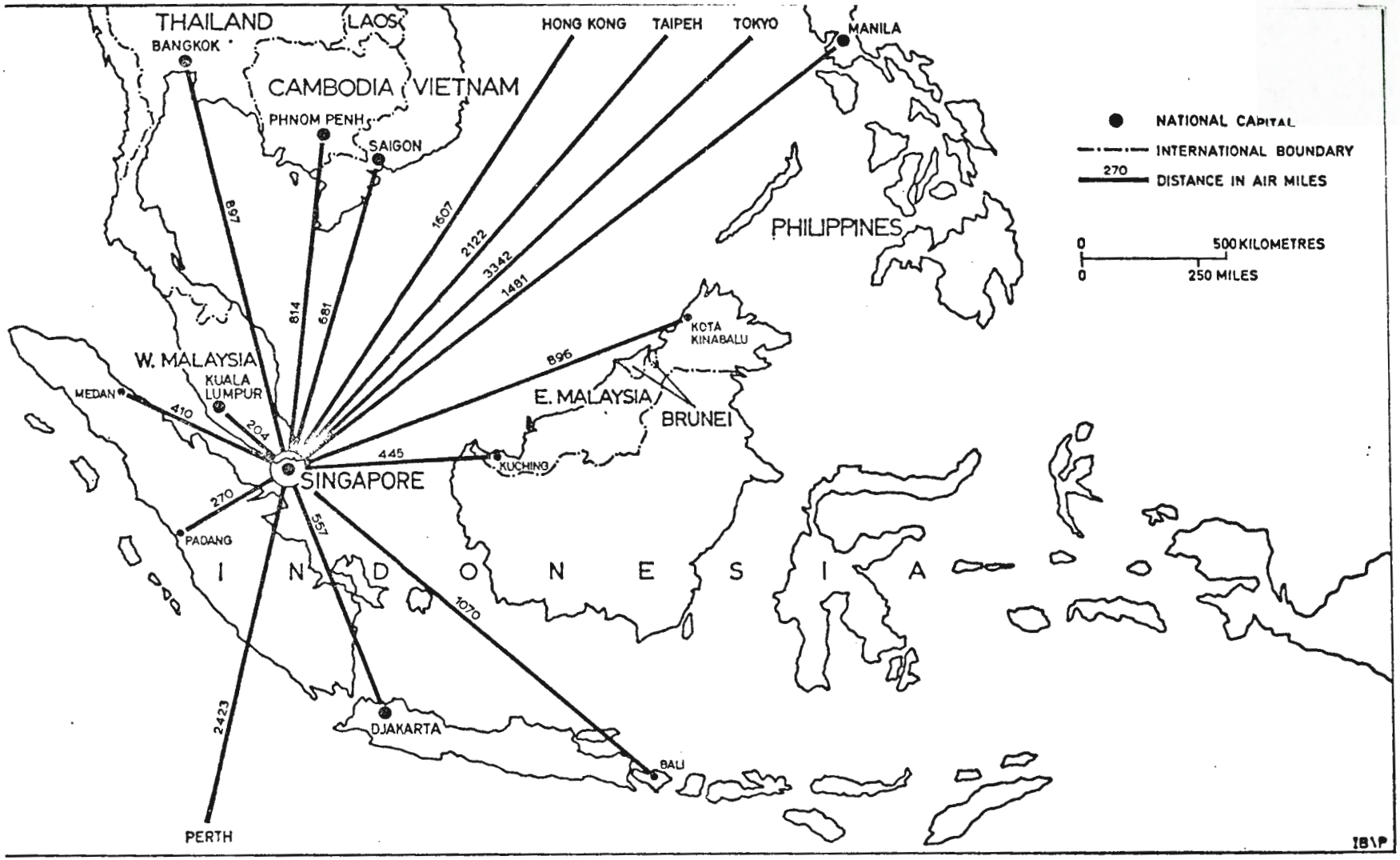
B. BACKGROUND

Before proceeding immediately into an economics treatise, it would perhaps be appropriate to first indulge in a brief background description of the geophysical attributes, history and people, for the benefit of readers unfamiliar with Singapore. This would also serve to set the stage for the ensuing discussions.

1. The Land

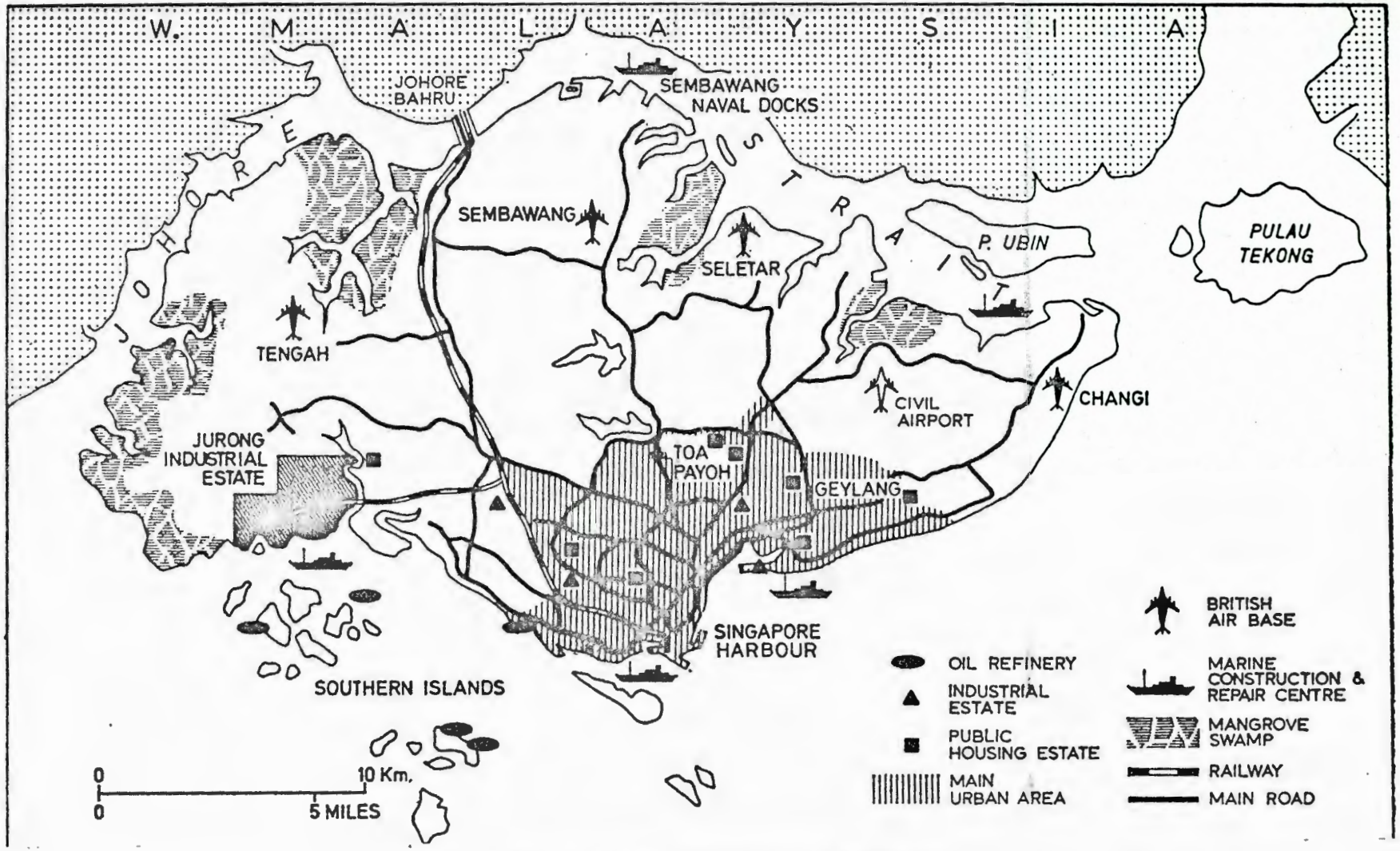
The Republic of Singapore, consisting of Singapore Island and adjacent islets, is situated in the Indian Ocean off the southern tip of the Malay Peninsula, to which it is connected by a causeway three quarters of a mile in length across the Johore Strait. To its west, across the narrow Straits of Malacca, lies the large Indonesian island of Sumatra. (Please see Map 1.) Singapore lies 1° 19'N and 103° 51'E and extends 26 miles from north to south. The island has an area of 209.5 sq. miles, with the islets covering about 15 sq. miles.

Singapore is endowed with relatively non-existent natural resources. The island is mostly low-lying, green undulating country with a small range of hills in the center. Its highest point is a hillock of height 581 feet. There are sections of rain forest in the center and large mangrove swamps along the coast. (Please see Map 2.) Singapore however has been blessed with one good fortune — it has a large, deep, well-protected harbor, and this



Map 1. Singapore—'The linch-pin of Southeast Asia'.

Source: Buchanan, I., "Singapore in Southeast Asia", 1972.



Map 2. The Island Republic of Singapore.

Source: Buchanan, I., "Singapore in Southeast Asia", 1972.

attribute when taken into consideration with the island's strategic position in Southeast Asia has made it the fourth largest port in the world.

The climate is tropical, with heavy rainfall and high humidity. The range of temperature is slight; average annual maximum is 87°F, average minimum 75°. The annual rainfall of about 95 inches is distributed fairly evenly throughout the year, ranging from 10 inches in December to 7 inches in May. It rains about one day in three.

2. History

The exact date of the founding of Singapore is not known, but there is evidence to suggest that it was founded in the 7th century. Singapore (meaning the Lion City) was a thriving trade center in the 13th and 14th centuries until it was devastated by a Javanese attack in 1377.

Singapore was an almost uninhabited island and formed part of the province of Johore when Sir Stamford Raffles, in 1819, established a trading station of the British East India Company there. In 1824, the island was ceded to Great Britain; two years later it was incorporated with Malacca and Penang to form the Straits Settlements. The trading station grew into the city of Singapore and attracted many Chinese and Malay merchants. With its excellent harbor it quickly became a flourishing center and the leading port in Southeast Asia, handling the vast export trade in tin and rubber from the British-ruled Malayan

hinterland. Its growth and prosperity continued uninterruptedly until World War II. In 1938, the United Kingdom had completed a vast naval and air base on the island, but the Japanese captured it in 1942 after blockade and attack from across the causeway. Recaptured by the British in 1945, it was detached from the Straits Settlements to become a seperate crown colony in 1946. Under a new constitution, on June 3rd 1959, Singapore became a self-governing state within the British Commonwealth of Nations. On September 16th 1963, Singapore became a fully independent nation within the Malaysian Confederation. On August 9th 1965, Singapore separated from Malaysia and became an independent, sovereign republic within the Commonwealth, and attained membership in the United Nations thence.

3. Government and Politics

On assuming independent status, Singapore acquired full sovereignty over its territory, including the defense bases formerly held by the British, and full administrative and financial responsibility for all departments. On December 22nd 1965, the Singapore parliament approved a bill proclaiming Singapore an independent republic headed by a president, and ratified the new constitution. The constitution sets forth a parliamentary system of government based on full adult suffrage, which has been compulsory since 1959. Every citizen twenty-one years of age or over, irrespective of sex, race, creed, education or

income has the right to vote. The Singapore parliament, whose maximum term is five years, consists of fifty-eight members, each elected by secret ballot in a one-member constituency. Members may address the parliament in English, Malay, Chinese (Mandarin) or Tamil. Executive power is vested in a cabinet composed of the prime minister and ten other ministers, all drawn from, and responsible to, the legislature.

Since the end of World War II there has been political ferment in Singapore, characterized by mergers of old parties and the emergence of new ones. The struggle for independence culminated in a series of general elections from 1959 onwards, whence the ruling party kept going back to the electorate for a mandate and each time was returned to power by increased majorities. Its leader, Lee Kuan Yew, became prime minister in June 1959 and has remained in office ever since. He has become Singapore's best known contemporary political figure and a leading statesman in Southeast Asia.

4. The People

In mid-1969, Singapore's estimated population was two million (1.86 million in 1965). During the decade 1947-1957, the average annual rate of growth was 4.3% compared with 3.6% for the period 1957-1962. Since 1962 there has been a significant decline in the growth rate. The annual

rate of increase in 1969 dropped to 1.5%. Table II shows the approximate breakdown of the population by ethnic groups.

	Population	Percentage
Chinese	1,580,000	76.2%
Malays	311,000	15.0
Indians and Pakistanis	145,000	7.0
Other non-indigenous (e.g. Eurasians)	38,000	1.8
Total (all races)	2,074,000	100.0

TABLE II.
Singapore's Ethnic Composition of Population, 1970
Source: Singapore Yearbook, 1970-1971, Govt Printing Office.

Malay is the national language. Official languages are English, Malay, Chinese (Mandarin) and Tamil. There is complete separation of state and religion in Singapore. Religious freedom is constitutionally guaranteed. The Malays and Pakistanis are almost without exception Muslims, while the majority of the Indian community are Hindus. The Chinese are Buddhists, Taoists and Confucianists. There are also Christians and Sikhs in Singapore, although Jehovah's Witnesses were banned on the island a couple of years ago because of their professed opposition to military national service.

Being such a cosmopolitan city, Singapore is hardly insulated from the effects of the racial bickering and conflict now going on in the Malay world surrounding her. To make matters worse, Singapore is regarded by its Malay neighbors as a second China because of its predominantly Chinese population. This enmity, though latent, nevertheless threatens to destroy the fabric of peace and economic prosperity in the region. The economically-deprived Malays have long cast envious eyes on their Chinese fellow-citizens and this feeling of frustration has caused many a race riot in Singapore, as well as in Malaysia and Indonesia. Consequently, the predominance of Chinese on the island-state has done little to ensure harmony between Singapore and its neighbors. In all seriousness, neighborly ill-will is one thing Singapore can least afford since it depends so much on the regional trade volume. Much of the business transacted in Singapore is on behalf of establishments engaged in the export of primary products from, and the import of manufactured goods into, Malaya. Similarly, Indonesia is another one of Singapore's main trading partners.

5. Social Influences

In Singapore, ethnic and linguistic diversity, together with economic specialization and residential localization along ethnic lines, involves a complex and often pronounced division of the population in economic, social, and even political terms. However, it must be stressed

that this diversity is not, in itself, a major source of tension or conflict within Singapore society. It may appear to create many intractable problems for the smooth integration of a national society, but cultural diversity does not mean cultural conflict. The population is urban, with a large Chinese majority, and what functional specialization there is between various ethnic groups is of a complementary nature rather than a conflicting one. The people live and work within the same urban and tertiary context.

A far more significant social influence is the juxtaposition of wealth and poverty in a land whose economy is too top-heavy to absorb the bulk of its population into meaningful employment. This has resulted in wide differences in living levels, as Table III attests to. In 1966, one third of the total population lived in 'temporary' wooden structures, with attap-thatch, zinc or bitumen sheet roofing. Most of these people, perhaps over 500,000, were squatters — occupying land they had no legal right to occupy. In general, it is possible to distinguish six social classes in Singapore society: a fractional upper class, an upper middle class, an intermediate middle class, a lower middle class, an upper working class and a lower working class. Such a classification is made on the basis of income status, occupation, social and political values, and life styles. Singapore is a class society, and a great deal of social and political life is determined by class considerations

Type of housing	Population in each type of housing TOTAL	PERCENT	Average size of household
Bungalows & their sub-divisions	97,761	4.8	5.9
Semi-detached houses & their sub-divisions	40,344	2.0	5.5
Shophouses or rowhouses	312,525	16.0	5.3
Floor(s) of shophouse or rowhouse	136,994	7.0	4.5
Housing Board Flats	567,442	29.0	6.7
Private Flats	64,359	3.3	5.0
Tenement Building Units	64,703	3.3	4.9
Attap or Zinc Roof Houses & their sub-divisions	653,851	33.3	6.4
Others	24,781	1.3	4.7
TOTAL	1,962,759	100.0	5.9

TABLE III.

Population of Singapore by Type of Housing Occupied, 1966
Source: Republic of Singapore, 'Sample Household Survey, 1966, Report No. 1, Table H,' p. 213.

rather than ethnic ones. Table IV summarizes the distinquishing features of each 'class'. Socio-economic disparity is by far the leading cause of discontent in the island-state. Hence, from the table, one can see that approximately some half a million people are drifting on the margins of poverty – and another half million people are existing completely and chronically in poverty. It has been recently determined that in today's age of inflation, the poverty

Class	Majority Race	Profession	Income Range	% of Population
Upper	European Chinese	Business Bankers	Over $50,000 p.a. (US$22,000)	3%
Upper middle	Chinese Indians	Univ. teachers Executives Senior civil servants	$25,000-50,000 p.a.	2%
Intermediate middle	Chinese	Commerce Shop proprietors	$12,000-25,000 p.a.	5%
Lower middle	Chinese Malays	School teachers Clerical workers Shop-keepers	$ 5,000-12,000 p.a.	15%
Upper working	Indians Malays	Factory workers Taxi drivers Bus conductors	$ 2,500-5,000 p.a.	20%
Lower working	Chinese Indians Malays	Hawkers Trishaw riders	Below $2,500 p.a.	55%

TABLE IV.

Class Divisions in Singapore

Source: Buchanan, I., SINGAPORE IN SOUTHEAST ASIA, Bell, 1972, p. 201.

line for a family of four in Singapore is $250 per month. The government is thus faced with a monumental task to better the lot of 50% of its people — national economic policy must be set within such a context. The problem of slum growth and urban poverty is inseparable from the wider problem of economic survival.

II. THE ECONOMY

The economy of Singapore is that of a colonial metropolis, dependent for its survival upon handling raw materials from a large primary-producing hinterland and manufactured goods from more industrialized countries. In this respect, it plays a vital entrepot role for Malaysia and Indonesia on the one hand, and Japan, Western Europe, the United States, and Great Britain on the other. (According to the dictionary, the word "entrepot" means "etape" (stopping place), "warehouse" or "wharf", where merchandise is deposited temporarily for re-export.) Large earnings from entrepot trade have held back the development of unrelated industries while stimulating the growth of ship-building and repair, tin smelting, and rubber and copra milling. However due to several recent developments including population growth and anticipated competition from ports now being developed in the Federation of Malaysia, the government is seeking ways of expanding existing industries and establishing new ones. In no way can Singapore be described as having a viable national economy. Undoubtedly, the nation has come a long way since its 1819 founding as a trading post, but it is barely equipped to face the future and increased competition from its neighbors.

A brief resume of Singapore's economic history follows together with a descriptive survey of the current economic

scene. This would provide the basic background for the subsequent discussions on Singapore's future economic development.

A. ECONOMIC HISTORY

Singapore's economic history can best be described by dividing the past into three time periods:

1. The Colonial Beginning (1819-1935)

For one hundred and fifty years, the island of Singapore has been a focal point of British political, economic and military interest in Southeast Asia. Founded in 1819, Singapore grew rapidly as an entrepot for European trade with East and Southeast Asia, as a clearing-house for Chinese and Indian immigrant laborers and entrepreneurs, and as a forward base east of Suez for Britain's East Asian military and political presence. Its strategic position on the sea-route between Europe and China, and in the center of the Malay archipelago, was of great importance to British imperial interests.

From the 1820's onwards, Singapore's entrepot trade expanded: between 1824 and 1872, the total value of the colony's trade increased eight times [6]. To Singapore came the primary produce of the surrounding archipelago, the Malay Peninsula and Indochina, for shipment to Europe, North America and China; and from Europe came manufactured goods and capital for distribution throughout colonial Asia. At

the same time, Singapore imported manufactured goods — mainly textiles — from India and China, for re-export to Indonesia, the Malay States, Thailand and Cambodia. A broad indication of the nature of Singapore's trade in 1836 is given in Table V: textile piecegoods were the single most important commodity in the settlement's combined import-export trade, closely followed by opium, foodstuffs, and metal ores (mainly gold dust and tin).

COMMODITY	IMPORTS Value	IMPORTS %age	EXPORTS Value	EXPORTS %age
Food, drink & tobacco[b]	1,025	22.3	1,318	28.3
Opium	1,083	23.6	795	17.0
Metal ore & concentrates	686	15.0	990	21.2
Textile unwoven	237	5.2	283	6.1
Piece-goods	1,304	28.4	1,056	22.6
Miscellaneous	265	5.5	224	4.8
TOTAL	4,600	100.0	4,666	100.0

TABLE V.
Singapore Trade by Major Commodities, 1836[a]

[a] In Spanish dollars, including commodities valued at 50,000 Spanish dollars or more

[b] Includes spices, tea and coffee

Source: Buchanan, I., "Singapore in Southeast Asia", 1972.

British interest in the Malay States was formalized in the 1870's and Malaya too became a British colony. This led to the export of Malayan tin and rubber through Singapore and these developments changed the emphasis of

Singapore's economy from entrepot trade to direct import-export dealings with Malaya. Table VI shows the composition of trade for the island in 1936. As Malaya's export economy developed, so too did the trading economy of Singapore. The two were inextricably interwoven, with Singapore acting as the 'headlink' city for the fertile and productive Malayan hinterland – long remaining the main outlet for its primary products, and the main entrance for its imports of manufactured goods, capital and labor.

COMMODITY	IMPORTS Value	IMPORTS %age	EXPORTS Value	EXPORTS %age
Food, drink & tobacco	69,407	25.0	33,947	11.4
Copra	9,805	3.6	11,541	4.0
Vegetable oil	1,401	.5	7,640	2.6
Metal ore & concentrates	7,281	2.7	-	-
Metal smelted	7,051	2.6	63,457	21.4
Textile piece-goods	19,464	7.1	2,249	.7
Rubber	78,176	28.5	129,356	43.6
Liquid Fuel	60,628	22.1	43,932	14.8
Other Mfd goods[b]	15,238	5.6	1,519	.5
Miscellaneous	6,489	2.3	2,974	1.0
TOTAL	273,940	100.0	296,625	100.0

TABLE VI.
Singapore Trade by Major Commodities, 1936[a]

[a]In Malayan dollars, including commodities valued at M$1 mil or more

[b]Includes motor-cars

Source: Buchanan, I., "Singapore in Southeast Asia", 1972.

2. Before and After World War II (1936-1965)

Singapore continued to prosper, primarily playing the role of a 'middleman' between nearby regions of primary production and the industrialized western economies. When the Malayan economy boomed, Singapore had a share of it too. This was because such tertiary activities as shipping, finance, commerce and servicing came to be heavily concentrated in the one urban center, Singapore. This tertiary expansion was accompanied by large-scale accumulation of capital, a good proportion of which represented profits in investment by overseas or Singapore-based concerns in the extractive industries of Malaya. Some of these profits were re-invested in Malaya's primary sector, but most were remitted to the United Kingdom or China, or retained in Singapore.

Thus Singapore was dependent both upon foreign economic interest and control (e.g. the British trading agency houses), and upon its Malayan hinterland. During the 1950's, 90% of the Malaya-Singapore region's total entrepot trade went through the port of Singapore. In 1955, Malaya accounted for 25.6% of the island's gross import trade and 17.4% of its gross exports, while Singapore accounted for 38% of Malaya's import trade and 42% of its export trade. Five years later, Malaya accounted for 21% of Singapore's imports and 24% of its exports, while Singapore accounted for nearly 40% of Malaya's imports and 30%

of its exports [32]. Both economies became heavily dependent upon each other, unbalanced and precarious: in Malaya, there was a disproportionate development of the primary sector, while in Singapore the tertiary sector was disproportionately developed.

During this period also, the two countries progressed politically. Both achieved independence and in 1963 merged (together with Sarawak and North Borneo) to form the Federation of Malaysia. However, Singapore's membership of the Malaysian Federation proved to be short-lived. Political and racial differences between the two states intensified, and events culminated in the separation of Singapore from Malaysia in August 1965. This split inevitably had its repercussions on the Singapore economy and the effects of it are still being felt up to this present day. It must also be mentioned that during the time Singapore was in Malaysia, it incurred the wrath of Indonesia's Soekarno who regarded the new Federation as a British puppet nation. Consequently, Indonesia mounted a 'confrontation' policy against the new nation, inciting terrorist activities and curtailing diplomatic and trade relations. Singapore's national economic aggregates for this period show the results of the above developments. The years spent in Malaysia resulted in the lowest growth rates of Gross Domestic Product for Singapore, a mere 6.5% annual rate. This was due to the substantial decline of entrepot trade by some 16.8% as

trade relations with Indonesia were severed. As a result, earnings on the entrepot trade declined from $441 million in 1963 to $306 million in 1965 [6]. On the other hand, there was a very large increase in the value of military services as can be expected in a period of military tension — British military expenditure increased by 27.7% in 1964 and again by 25.9% in 1965. In absolute terms, this meant an annual increase from $323 million in 1963 to $519 million in 1965 (US$1 equiv. to Singapore $2.3). This was sufficient to make good entrepot losses, taking the two years together. The year 1964 was however a particularly bad year — the decline in entrepot earnings was much greater than the increase in British military expenditure. Accordingly, the GDP for 1964 showed the least increase of the decade, a mere 0.5% (see Table VII).

Despite Indonesian confrontation, total investments continued to expand. Gross Domestic Fixed Capital Formation increased at an annual rate of 20.6%, running at $421 million and $476 million in 1964 and 1965 respectively. (See Table VIII.) The manufacturing industries managed to revive themselves in spite of poor trading, marketing and political conditions, especially the deteriorating relations between the Singapore and Malaysian governments. Manufacturing, construction and utilities showed a combined average of 16.2% annual growth during Malaysia as compared with 14.7% in pre-Malaysia. (See Table IX.) Finally, the

YEAR	Population (Mid-year Estimates)	Gross Domestic Product at factor cost	Per Capita GDP	Manufacturing Establishments		External Trade		
				Output	Index of Production (1968=100)	Total	Imports	Exports
	'000	$Million	$	$Million			$Million	
1960	1,634.1	2,046.0	1,252	1,667.1	-	7,554.8	4,077.7	3,477.1
1961	1,687.3	2,239.8	1,327	1,415.0	-	7,271.8	3,963.3	3,308.5
1962	1,732.8	2,371.4	1,369	1,740.7	-	7,452.6	4,035.8	3,416.8
1963	1,775.2	2,683.8	1,512	1,591.9	-	7,753.6	4,279.1	3,474.5
1964	1,820.0	2,700.3	1,484	1,544.9	-	6,250.7	3,478.8	2,771.9
1965	1,864.9	3,043.4	1,632	1,686.0	-	6,811.3	3,807.2	3,004.1
1966	1,913.5	3,365.2	1,759	1,979.9	76.3	7,439.3	4,065.7	3,373.6
1967	1,955.6	3,692.1	1,888	2,254.0	84.8	7,896.9	4,406.4	3,490.5
1968	1,987.9	4,257.0	2,141	2,806.2	100.0	8,974.5	5,083.8	3,890.7
1969	2,016.8	4,840.1	2,400	4,290.8	118.9	10,984.3	6,243.6	4,740.7
1970	2,074.5(1)	5,564.5(2)	2,682	4,951.9(2)	139.2	12,289.6	7,533.8	4,755.8

(1) Census of Population, 1970.

(2) Preliminary.

TABLE VII.

Key Economic Indicators

Source: Singapore Yearbook, 1970/71, Govt. Printing Office.

	1963	1964	1965	1966	1967	1968	1969	$Million 1970 (Prelim.)
Machinery and equipment	128.4	183.9	186.1	204.2	208.7	283.6	456.8	720.7
Machinery other than electric	55.7	83.8	80.7	106.4	119.4	168.2	282.4	415.4
Electric machinery	54.7	80.0	84.0	74.4	65.4	77.8	122.1	197.9
Miscellaneous	18.0	20.1	21.4	23.4	23.9	37.6	52.3	107.4
Transport equipment	19.2	21.6	31.8	20.7	23.4	106.4	123.7	116.7
Building, other construction and works	179.7	215.5	257.9	248.4	286.2	345.9	415.5	565.7
Dwellings	82.5	87.1	96.2	109.7	126.7	135.5	140.8	179.8
Non-residential buildings	48.8	56.8	66.3	56.1	81.3	108.1	150.6	202.4
Other construction and works	48.4	71.6	95.4	82.6	78.2	102.3	124.1	183.5
Gross Domestic Fixed Capital Formation	327.3	421.0	475.8	473.3	518.3	735.9	996.0	1,403.1
Public Sector	165.7	214.7	216.0	239.6	224.9	300.9	288.5	424.9
Private Sector	161.6	206.3	259.8	233.7	293.4	435.0	707.5	978.2

TABLE VIII.

Estimates of Gross Domestic Fixed Capital Formation by Type of Assets
(At Current Prices)

Source: Singapore Yearbook, 1970/71, Govt. Printing Office.

	1963	1964	1965	1966	1967	1968	1969	$Million 1970 (Prelim.)
Agriculture & Fishing	146.8	142.0	139.6	152.8	146.0	148.2	154.2	162.2
Manufacturing & Quarrying	294.8	330.5	414.3	486.8	616.5	716.0	897.2	1,153.5
Construction	94.7	113.9	130.6	128.7	150.1	179.8	212.9	290.4
Electricity, gas & water services	52.8	59.2	54.0	73.3	92.7	108.8	119.5	136.0
Entrepot and domestic trade	859.4	708.1	772.0	878.7	998.5	1,308.6	1,547.9	1,695.0
a. Entrepot trade	441.1	286.2	305.6	349.0	408.5	538.7	666.1	636.0
b. Domestic trade	418.3	421.9	466.4	529.7	590.0	769.9	881.8	1,059.0
Ownership of dwellings	110.4	118.1	128.7	141.5	152.5	167.2	184.6	206.9
Government services	189.0	191.0	214.3	246.4	264.9	300.3	321.0	393.6
Other services	935.9	1,037.5	1,189.9	1,257.0	1,270.9	1,328.1	1,402.8	1,526.9
Gross Domestic Product at factor cost	2,683.8	2,700.3	3,043.4	3,365.2	3,692.1	4,257.0	4,840.1	5,564.5

TABLE IX.

Estimates of Gross Domestic Product by Industrial Origin
(At Current Prices)

Source: Singapore Yearbook, 1970/71, Govt. Printing Office.

onerous terms of the financial agreement under which Singapore entered Malaysia resulted in a decline of the island's foreign (overseas) assets for the only time in the decade (see Table X). The assets which stood at $1,326 million at the end of 1963 were reduced to $1,316 million at the end of 1965. All in all it was not such a good idea for the island state to enter Malaysia.

3. Post-Malaysia (after 1965)

Perhaps the best way to begin this section would be to provide a bird's eye view of the economic picture after 1965 as in Tables XI and XII. It can be generally said that the economy of Singapore took a turn for the better when the island decided to go it alone separate from Malaysia. Although the initial political shock and setback took some time to sink in, the Government took realistic stock of the situation and guided the state back onto the path of economic progress. The figures speak for themselves. How was this turnabout achieved and how successful have the measures been? What are the prospects for the future and are there better ways at going about the solution of Singapore's economic problems? These questions will now be dealt with in detail.

B. NATIONAL PRODUCT AND LABOR FORCE

Some indication of Singapore's position amongst non-socialist Asian economies is given by the 1968 economic

Year	Cargo Handled			Passenger Arrivals	Commercial Banks		Money Supply	Official Foreign Assets	Govt. Revenue	Consumer Price Index (April/May 1960=100)
	Total	Loaded	Discharged		Deposits of Customers (other than Banks)	Loans & Advances to Customers (other than Banks)				
	Thousand Freight Tons			Persons	$Million			$Million		
1960	14,889.7	5,287.3	9,602.4	142,955	848.6	584.4	-	-	311.3	100.1
1961	18,258.0	6,507.1	11,750.9	160,756	892.8	629.5	-	-	397.4	100.4
1962	21,067.1	7,663.5	13,403.6	169,115	1,019.9	731.1	-	-	418.8	100.9
1963	21,593.7	7,853.4	13,740.3	167,772	1,092.0	791.9	841	1,325.8	469.6	103.1
1964	18,051.1	6,169.0	11,882.1	163,275	1,137.2	876.8	854	1,318.7	432.9	104.7
1965	21,340.3	7,980.3	13,360.0	182,938	1,222.0	913.9	895	1,316.1	507.6	105.0
1966	26,638.0	10,094.5	16,543.5	212,985	1,412.1	1,026.3	1,006	1,486.1	585.2	107.1
1967	30,340.3	11,943.0	18,397.3	276,534	1,828.2	1,105.6	985	1,700.7	663.0	110.6
1968	35,637.5	13,959.3	21,678.2	328,345	2,309.7	1,351.4	1,197	2,256.0	803.0	111.4
1969	37,904.2	15,334.8	22,569.4	428,482	2,745.4	1,727.1	1,421	2,904.2	1,261.2(3)	111.1
1970	42,159.8	15,720.4	26,439.4	546,019	3,194.9	2,167.7	1,651	3,561.7	1,041.3(4)	111.5

TABLE X.

Key Economic Indicators

(3) Refers to Financial Year 1st January, 1969 to 31st March, 1970.
(4) Refers to Financial Year 1st April, 1970 to 31st March, 1971.

Source: Singapore Yearbook, 1970/71, Govt. Printing Office.

National Economic Aggregates	Unit	1965	1969	1971
Gross Domestic Product	S$mil	$3,043	$ 4,833	$ 6,471
Gross Domestic Capital Formation	''	476	919	1,759
Trade & Transportation				
Total Imports and Exports	S$mil	6,811	10,984	14,026
Cargo Handled	mil freight tons	21.3	37.7	48.1
Passenger arrivals, sea and air	Thousand	183	546	-
Industrial Sector				
Manufacturing, value-added	S$mil	414	827	1,420
Construction	''	130	208	290
Utilities	''	54	120	136
Financial Statistics				
Commercial Bank Deposits	S$mil	1,222	2,745	3,200
Official Overseas Assets	''	1,316	2,445	3,562
Consumer Price Index	mid-1960 =100	105	110.9	113.6

TABLE XI.

Basic Economic Statistics, 1965, 1969 & 1971

Source: Yearbook of Statistics, Singapore Government.

$Million

	1963	1964	1965	1966	1967	1968	1969
A. Goods and services (net)	-300	-93	-101	48	-188	-435	-660
Merchandise trade (f.o.b.)							
Exports	3,291	2,601	2,810	3,168	3,239	3,589	4,471
Imports	3,995	3,252	3,570	3,825	4,149	4,759	5,863
Trade balance	-704	-651	-760	-657	-910	-1,170	-1,392
Services (net)	404	558	659	705	722	735	732
Freight & insurance	-241	-189	-207	-223	-248	-299	-356
Transportation	231	221	249	274	348	432	433
Travel	44	50	53	72	108	128	196
Other invisibles and investment income	370	476	564	582	514	474	459
B. Transfer payments (net)	-32	-73	-49	-45	-39	-41	-39
C. Non-monetary capital (net)	41	22	87	51	113	271	170
Private long-term (net)	16	33	58	94	104	122	145
Official long-term (net)	25	-11	29	-43	9	149	25
Sub-total (A+B+C)	-291	-144	-63	54	-114	-205	-529
D. Net errors and omissions	372	54	31	133	473	753	994
E. Over-all payments surplus or deficit (-) (A through D)	81	-90	-32	187	359	548	465
F. Monetary movements (net) (increase-)	-81	90	32	-187	-359	-548	-465
Net IMF accounts	-	-	-	-23	-	-	-
Currency Board's foreigh assets	-16	-32	-47	-53	-29	-49	-104
Commercial bank's foreign assets	17	78	17	-34	-55	115	-172
Central government assets	-82	44	62	-77	-275	-614	-189

TABLE XII.
Estimates of Balance of Payments

Source: Singapore Yearbook, 1970/71, Govt. Printing Office.

figures in Table XIII. It can be seen that apart from Japan, Singapore has the highest level of per capita production (and income) in non-socialist Asia. In the post-Malaysia period, Singapore's G.D.P. increased at a compound annual rate of 12.3% as compared with 6.5% during Malaysia and 8.1% pre-Malaysia. Trade, industry and tourism were now providing the main thrust to the island's economic growth. Except for the year 1967, the economy moved ahead briskly. Details of the G.D.P. for 1966-1971 are set out in Table XIV. Table XV shows the industrial origin of G.D.P. and the expenditure on G.D.P. for 1970-1971. It can be seen that entrepot and domestic trade declined in percentage composition of G.D.P. whilst manufacturing and quarrying increased.

The latest preliminary estimates released by the government show that Singapore's G.N.P. grew by a net 11% for 1973. In terms of value, the GNP, at current prices, grew in 1973 by $1,832.7 million to $9,892.9 million, at an annual growth rate of 22.7%. However, allowing for the large price increase during the year, real GNP probably grew by only the 11% stated above. The growth of the GDP was also estimated at around 11% in 1973 after discounting the large price increases last year, although at current prices the growth was at the record rate of 22%. The manufacturing sector continued to be the leading growth sector in Singapore's economy. Its contribution to the GDP increased from 24.6% in 1972 to 26.2% in 1973. The manufacturing industries

Country	Popn Est. (1968)	G.D.P. (US$mil) (1968)		Increase in GDP (1967-68) %age	
	mills.	Total	per cap.	Total	per cap.
Indonesia	113.0	11,500	80	3.0	-
Japan	102.0	141,922	1405	18.7	17.4
Thailand	33.0	5,576	165	9.8	11.5
S. Korea	30.5	5,815	191	26.1	24.0
Taiwan	13.5	4,144	304	15.2	12.6
Malaysia	10.0	3,362	326	5.8	2.8
Hong Kong	4.0	2,630	680	10.7	9.7
Singapore	2.0	1,492	751	17.5	15.7

All GDP figures are at market prices except those for Hong Kong, given at factor cost.

TABLE XIII.

Changes in Gross Domestic Product & Per Capita Gross Domestic Product in Eight Asian Countries.

Source: United Nations, "Economic Survey of Asia and the Far East".

- -

	S$ million	Increase
1966	3,365	10.6%
1967	3,692	9.7
1968	4,257	15.3
1969	4,840	13.7
1970	5,675	17.2
1971	6,471	14.0

TABLE XIV.

Gross Domestic Product at Factor Cost

Source: Buchanan, I., Singapore in Southeast Asia, 1972.

Industrial Origin of Gross Domestic Product

(S$ mn; current prices)

	1970	%	1971[a]	%
Agriculture & fishing	171	3.0	188	2.9
Manufacturing & quarrying	1,144	20.2	1,491	23.0
Construction	302	5.3	353	5.5
Electricity, gas & water services	138	2.4	157	2.4
Entrepot & domestic trade	1,743	30.7	1,910	29.5
Ownership of dwellings	205	3.6	241	3.7
Government services	390	6.9	452	7.0
Other services	1,583	27.9	1,680	26.0
Gross domestic product at factor cost	5,675	100.0	6,471	100.0

a Preliminary.

Expenditure on Gross Domestic Product

(S$ mn; current prices)

	1970	%	1971[a]	%
Private consumption expenditure	3,574	66.6	4,080.9	63.8
Government consumption expenditure	731	13.6	919.1	14.4
Gross domestic fixed capital formation	1,403	26.1	1,759.3	27.5
Gross domestic product at market prices	5,708	106.3	6,759.3	105.7
Less indirect taxes	338	6.3	367.2	5.7
Gross domestic product at factor cost	5,370	100.0	6,392.1	100.0
Per capita gross domestic product at factor cost (S$)	2,620		3,029.0	100.0

a Preliminary.

TABLE XV.

Singapore's National Accounts

Source: Yearbook of Statistics. (Singapore Government)

contributed a total of $2,379 million to the GDP in 1973, an increase of $545.6 million or 29.8% (compared with 28.2% in 1972 and 25% in 1971). This increase in the value added by the manufacturing sector accounted for about one-third of the total increase of $1,638 million in GDP. While increases in output and value added were registered in all the major industry groups, some industries continued to be the mainstays of the manufacturing sector. Petroleum refining was still the largest individual industry in the value of its products. However, the contribution of petroleum refining to the total value added to the GDP by the manufacturing process in Singapore had declined from 15.7% in 1972 to 13.4% in 1973. The electrical machinery industry's contribution was larger than that of petroleum refining. Its value added accounted for 23.1% of total value added. Petroleum refining had in this respect also been overtaken by the transport equipment industry (including ship-building and ship-repairing).

It must not be forgotten that during the years after Malaysia, there was a marked decline in British military expenditure from $549.5 million to $489.9 million. The British Government, bowing to domestic pressure, decided to withdraw its military presence east of Suez and consequently Singapore's income for services rendered dropped. The British withdrawal in 1971 put thousands of Singaporeans out of work. Despite the opening of new industries, and the relatively rapid

increase in the working labor force, unemployment and underemployment still remain a serious problem. However, the number of registered unemployed did fall from 43,700 at the end of 1970 to 36,000 at the end of 1972. The net result of the British pull-out has not been as bad as it was feared it might have been. Table XVI gives an indication of the labor force utilization by industry. Terms and conditions of employment are regulated under the Employment Act and Industrial Relations (Amendment) Act of 1968. In general, employees work a 44-hr week and get 11 paid holidays a year and 7 or 14 days annual leave, depending on length of service. Although Singapore's labor force is represented by 110 registered trade unions, the government has established a rather firm hold on the labor situation. All industrial disputes are referred to an Arbitration Court and strict wage controls are enforced. In these days of worldwide inflation and rising oil prices, such a policy has paid dividends as evidenced by the latest growth figures released by the government. Whether it will continue to be the right cure for Singapore's growth pains in the future remains to be seen.

C. FINANCE AND PRICES

1. Public Finance

The government derives its revenue from income tax, property tax, customs and excise on liquor, petroleum and

Persons Engaged by Industry
(number)

	Sep 1970	Mar 1972
Agriculture, forestry, fishing, etc.	2,231	2,466
Mining & quarrying	1,677	1,867
Manufacturing	132,898	172,166
Electricity, gas, water	13,935	15,689
Construction	22,120	27,312
Commerce	99,676	114,947
Transport, storage, communications	42,143	48,601
Financing, insurance, business services, etc.	24,452	30,907
Community, social & personal services	104,653	100,490
Total	443,785	514,445

TABLE XVI.

Source: Monthly Digest of Statistics. (Singapore Government)

tobacco, hotel and restaurant charges. Actual revenues and expenditures for 1968 and 1972/73 (in Singapore$) are given in the accompanying Table XVII. Government policy is directed towards two main goals: maintaining Singapore's position as the major international trading center in Southeast Asia, and stimulating industrial development by the expansion of existing industries and the development of new ones, particularly small-and medium-sized enterprises to serve the need of the rapidly increasing population. To this end, the government program for industrial development is based largely on the recommendation made in 1955 by an IBRD (International Bank for Reconstruction and Development) mission. A

Government Finance 1972/73[a]
(S$ mn)

Revenue	1968	1972/73
Direct taxes	211	538
Indirect taxes & taxes on outlay	245	421
Reimbursements & sales of goods & services	170	164
Incomes from investments & property	73	162
Other	104	164
Total	803	1,449
Expenditure		
Social services	282	385
Economic services	49	113
Statutory expenditure	96	218
Internal security & defence	124	563
Transfers to development fund plus surplus	-	100
Other	282	69
Total	803	1,449

a The above budget estimates for 1972/73 refer to the fiscal year.

TABLE XVII.

Source: Budget Speech 1972, Singapore Finance Minister.

five-year development plan, begun in 1956, involved an expenditure of about S$600 million. The second five-year plan (1966-1970) set an expenditure of S$1,520 million: $976 mil. for economic development, $483 mil. for social development and $61 mil. for public administration. The plan concentrated its major funds towards developing an industrial base largely with export markets in view.

The results of the second five-year plan can be judged by the pattern of spending being adopted by the government for the coming year. Table XVIII shows the main and development budget estimates for the financial year April 1, 1974 to March 31, 1975. It can be seen that the lion's share goes to social and community services. The largest single allocation is for housing. From a total appropriation of over $1,272 mil. for social and community services combined, representing 37.6% of the Budget, housing has been given $552 mil. or 16.3% of the main and development estimates. About 28,000 low cost housing units (high-rise flats) and associated facilities, such as hawkers centers, sports complexes and car parks, are planned. Economic services, which last year took the biggest share of 64.1% of the Budget, has fallen to second place with 27% (over $912 mil.). It would seem that the emphasis is now being placed on the social welfare of the people.

2. Banking

The thirty-seven exchange banks in Singapore function as the center of the banking system of the Malay Peninsula. Many of these are branches of giant overseas banks. In fact, only eleven are registered locally (end 1970). In addition, there are numerous Chinese "clan banks" decentralized throughout the island. There has been considerable expansion in banking in recent years, but the pattern of lending has continued to be dominated by international trade financing. A

MAIN ESTIMATES		DEVELOPMENT ESTIMATES	
Revenue		Sources of Funds	
Direct taxes	$ 989,200,000	Appropriation from Revenue account	$ 480,000,000
Indirect taxes and taxes on outlay	675,200,000	External loans	75,000,000
Reimbursements and sales of goods and services	317,056,000	Domestic loans	750,000,000
Income from investments and property	164,650,000	Others	232,500,000
Others	176,844,000	Drawing down of Development Fund Balance	24,147,440
TOTAL	$2,322,950,000	TOTAL	$1,561,647,440
Expenditure		Expenditure	
General services	$ 128,419,580	General services	$ 13,440,800
Defence and Justice	637,718,590	Defence and Justice	60,212,660
Social and community services	573,434,550	Social and community services	698,634,180
Economic services	123,018,680	Economic services	789,359,800
Public Debt	321,408,990	Public debt	....
Unallocable	35,475,070	Unallocable	....
Add: Transfer to Development Fund $480,000,000 Surplus 23,474,540	503,474,540		
TOTAL	$2,322,950,000	TOTAL	$1,561,647,440

TABLE XVIII.

Singapore's Budget for 1974/75.

Source: Budget Speech 1974, Singapore Finance Minister.

new aspect of the expansion came in 1969 with the selection of Singapore as the center for the Asian dollar market. At the end of 1972, the size of this market was estimated at S$3.2 billion. It is continuing to grow rapidly and more foreign banks are opening offices in Singapore. Today Singapore is one of the leading financial centers in Southeast Asis, (Hong Kong being the other), and the innovations of recent years include numbered accounts and a market in Negotiable Certificates of Deposit.

3. Consumer Price Index

During this period of world inflation, Singapore, like any other developing country, was not spared as the rapid price increases were transmitted to it via imports. However, Singapore's own rise in consumer prices of 22.9% last year and 2.1% in 1972 does not appear excessive when compared with Hong Kong's and Taiwan's and furthermore the Republic does not produce food. Table XIX shows the price indices for 1968-1972. In Hong Kong last year, consumer prices rose by about 24% against 6.1% in 1972, and in Taiwan, 9.5% against 4.9%.

(April/May 1960=100)

End of period	1968	1969	1970	1971	1972
*All items	111.4	111.1	111.5	113.6	116.0
Food	114.6	112.2	111.5	114.3	117.4
Clothing	104.1	106.3	106.8	109.7	111.7

TABLE XIX.
*Consumer Price Index

Source: Monthly Digest of Statistics. (Singapore Government)

Devaluation of the US dollar in February 1973 for the second time in 14 months and the floating of major world currencies had their repercussions in Singapore. The earlier weakness of the US dollar led to a large speculative inflow capital with inflationary effects caused by domestic over-liquidity. The need to curb this inflow, coupled with concern over imported inflation, led to the decision to float the Singapore dollar on June 21, 1973.

D. FOREIGN TRADE

Singapore's port is still being used by its neighbors for the export of rubber, tin, iron ore, copra, palm oil, pepper and timber; it is also the distribution center for imports of manufactured goods, rice, sugar and textiles. The volume of entrepot trade has declined relatively during the last few years, and will probably continue to do so. Both Malaysia and Indonesia are now insisting that their trade be directly with them as far as possible. Trade with Indonesia, which probably totals over S$1 billion annually, is not published and is therefore excluded from Table XX – Trend of Foreign Trade (1967-1972). The 1973 figures recently released by the government show a total value of S$21,476 million of external trade – $8,914 mil. exports and $12,562 mil. imports. For the second year running, the rate of increase of exports exceeded that for imports, the former reaching a spectacular 45% and the latter 31.7%. Both

*Trend of Foreign Trade[a]

(S$ mn)

	1967	1968	1969	1970	1971	1972
Exports	3,490.5	3,890.7	4,740.7	4,755.8	5,371.3	6,149.3
Imports	4,406.4	5,083.8	6,243.6	7,533.8	8,655.0	9,537.9
Balance	-915.9	-1,193.1	-1,502.9	-2,778.0	-3,283.7	-3,488.6

a Including trade with West Malaysia.

Main Commodities Traded

(S$ mn)

Exports & re-exports	1971	1972	Imports	1971	1972
Crude rubber	943	842	Crude rubber	469	477
Machinery & transport equipment	741	1,220	Machinery & transport equipment	2,209	2,648
Petroleum products	1,133	1,158	Rice	89	126
Coffee	65	46	Woven cotton fabrics	154	151
Sawn timber	95	131	Steel sheets & plates	135	158

TABLE XX.

Singapore's Foreign Trade

Source: Monthly Digest of Statistics. (Singapore Government)

showed higher rates of growth compared to 14.5% and 10.1% respectively over 1972. The vigorous expansion of external trade in 1973 was due to the larger volume of trade, the significant price increases in most primary commodities such as rubber, palm oil and timber, as well as the general world-wide inflation. High prices of primary commodities also accounted for the very high growth of re-exports in 1973 of 35.3% far exceeding the corresponding rate of 1.7% achieved the previous year. Even after eliminating the effects of price increases, total exports still registered an increase of 14.1% which is as high as that attained in 1972, while re-exports grew at 6% (thrice the rate of 1.7% achieved in 1972). On the other hand, the growth in imports after discounting for price increases, was slightly lower at some 6.2% compared to 10.1% in the previous year. The high growth in exports was made possible mainly by the rapid expansion in the island's domestic exports, the bulk of which comprises local manufactures. At current prices, domestic exports reached S$4,791 million in 1973, representing an increase of 54.5%.

Singapore's principal trading partners are listed in Table XXI. Malaysia and Indonesia continue to be dependent on Singapore's port facilities, although the Japanese are fast making their presence felt in Singapore business and commerce circles. The main trends in Singapore's external trade can be summarized as follows: there was a marked

Country or Region	IMPORTS Value ($mil.)	IMPORTS %age	EXPORTS Value ($mil.)	EXPORTS %age
Malaysia	1,396.5	17.6	1,088.0	19.6
Indonesia	1,700.0	21.4	800.0	14.4
South Vietnam	1.2	-	447.5	8.1
Thailand	167.9	2.1	177.8	3.2
Japan	1,018.9	12.8	336.3	6.1
China	418.5	5.3	174.8	3.2
Hong Kong	165.9	2.1	143.0	2.6
Taiwan	81.8	1.0	31.1	0.5
South Korea	38.8	0.5	32.4	0.5
The 'Oil States'	609.7	7.7	39.1	0.7
Africa	87.3	1.1	135.3	2.4
West Europe	613.1	7.7	481.3	8.7
USSR & East Europe	75.1	1.0	236.7	4.3
Great Britain	421.3	5.4	273.7	4.3
United States	494.2	6.2	508.5	9.2
Australia/New Zealand	273.3	3.4	154.1	2.8
Central & South America	102.3	1.3	104.4	1.9
Others	277.8	3.4	376.9	7.5
GRAND TOTAL	7,943.6	100.0	5,540.9	100.0

TABLE XXI.

Singapore's Foreign Trade by Country & Region, 1969.

Source: Yearbook of Statistics, Govt. Printing Office.

shift in the direction of trade – from Southeast Asia to the industrialized nations; together with this change in direction went a change in the composition of trade – imports from surrounding countries decreased as a proportion of total trade, while exports to them showed a proportionate increase (mainly to Indonesia, East Malaysia and South Vietnam), and the reverse happened with extra-regional trade; and finally, Singapore's trading pattern showed a shift in emphasis from the British-Malayan sphere of influence to the United States-Japanese sphere of influence.

Singapore's foreign trade has long been characterized by a continuous deficit (as seen in Table XX). Some causal factors include the expansion of the industrial sector which necessitated increases in retained imports of capital goods as well as intermediate goods used in the production process; the generally higher prices of manufactured goods compared to those of the raw materials, crude or processed, which form over one-third of the export trade; and finally the one-sided dependence of Singapore on oil from the oil-states and China-made goods (mainly foodstuff) from Taiwan and Hong Kong.

However, as evident from Table XII, the unfavorable visible trade balance has fortunately been counteracted by income from services in connection with transshipments, tourism, insurance, and financing, as well as from capital

investments. Consequently, Singapore's balance of payments has shown an overall surplus for the past few years.

E. PRESENT ECONOMIC ENVIRONMENT

Having presented a brief resume of Singapore's past economic achievements, it would be appropriate to now examine the factors, external and internal, which have influenced and will continue to influence the island's economic prosperity. However, being so vulnerable to these same factors, the economy could take a turn for the worse anytime anything untoward occurs to dislodge the stable equilibrium. It is for this reason that the government has initiated its own drive for economic growth based on the principles of self-sufficiency, industrious servitude and increased productivity.

1. External Factors

Apart from the ever-present politics of the Malay world in which Singapore finds itself enmeshed, the only other main external factor which influences the local economic picture is the state of the economies of the industrialized nations like the U.S., Japan and Germany. In Singapore, changes occur and policies are formulated largely in response to external pressures rather than local needs. This dependence on world events was best exemplified by the recent incident in which the Singapore government had no choice but to bow down to the Arabs' ultimatum and not sell

oil to the American Seventh Fleet, at the risk of incurring the displeasure of the American people. Without Arab oil, the local Shell-owned oil refinary would have had to shut down and thousands of Singaporeans would have been out of work. This the government could not allow to happen.

Singapore imports and processes basic raw materials from neighboring areas and exports the resultant commodities. The value of Singapore's foreign trade is accordingly heavily dependent on world prices for certain basic commodities, and the island's economy and prosperity have fluctuated as the price of rubber, in particular, has risen or fallen. In all probability the value of entrepot trade will continue to grow slowly, but it must inevitably account for a diminishing share of national product. It is thus largely to manufacturing that Singapore must look for economic salvation. It is difficult to see much future for consumer-goods industries having to pay high wage rates and serving only a tiny home market; exports are essential, and the government accordingly has offered very substantial tax concessions and other privileges to manufacturers exporting a high proportion of their output; Singapore feels that Africa, Latin America and Eastern Europe are particularly promising markets for its manufactures. Recently Government trade delegations were dispatched to these areas, as well as to the oil-rich Arab states, to establish trade relations and attract foreign investment. The success of such a

'wooing' campaign will undoubtedly have some bearing on the future economic prosperity of Singapore.

The Government has, in the midst of buffeting waves of international events, taken the necessary steps to curb the imported inflation discussed earlier. Price controls were not employed however, being unsuitable in a very open economy like Singapore's. Instead market forces were allowed to operate, with the people being exhorted to more selective buying, more restrained demand and less hoarding.

Closer to home, the events happening in Malaysia and Indonesia inevitably have repercussions on the Singapore economy. As long as the situation in Malaysia remains stable as it is today, then it can be confidently expected that Singapore will remain a major outlet for the produce of South Malaya. Indeed, Malaysia's ability to divert traffic, should it wish to do so, will be circumscribed through the decision of the major shipping lines serving the region to make Singapore the container port of the region. The use of containers is revolutionizing world shipping, and once the handling equipment and terminal facilities are installed at Singapore there will be no room for a competitor. With the aid of an International Bank loan, Singapore's harbor authority has embarked on a major modernization program which includes the construction of eight new ocean berths for container ships.

In the case of Indonesia, the future of entrepot trade with her is more uncertain. With all its development problems still causing public unrest in Jakarta, Indonesia's future stability cannot be predicted with any accuracy. A silver lining is however discernible in the petroleum reserves being discovered in Indonesia and its waters. With oilmen rushing into the region in droves to participate in the so-called 'oil boom', Singapore has had the opportunity to offer its services, e.g. financial, banking, insurance, transport and communications, to the investing oil companies. Between 1967 and 1970, some 4,000 oilmen arrived in Singapore to set up temporary residence and operate the 80 to 90 newly-established firms related to the oil industry. Most of them were Americans and Japanese and they brought their families with them. Oil will certainly be a key factor in the future of Singapore. As it is, the oil refinery in Singapore owned by Shell is the largest in Southeast Asia.

2. Internal Factors

According to Galbraith [11], a country must first have a stable government and educate its people before it can embark on an economic development program. Foreign aid and technological advances are pertinent to the development scene only if the first two conditions are present.

Singapore has been fortunate in having an efficient, well-qualified and stable administration in office since independence in 1959. This undoubtedly has contributed to

the optimistic state of the economy today. In Singapore currently, the main threat to economic stability and progress lies not in racial strife but more so in the prevalent socio-economic disparities existing amongst the people. In order to be able to compete with its neighbors in the export field, an increase in manufacturing activities is desirable. And to increase labor productivity, the government must set the appropriate wage policies so as not to price Singapore out of the labor market. However, on the other hand, in the face of inflation the workers are clamouring for increased wages to support their dependents. Industrial unrest amongst the poor laborers can only result in stunted growth, and the rich will get richer and the poor poorer. Singapore's best hopes of industrial success may well lie in its ability to hold a stable wage level while labor costs in Hong Kong, Japan, Taiwan and other Asian competitors trend slowly but inexorably upwards and there is plenty of evidence that the government intends to administer this stern policy despite its professed socialist intentions. Up to now, the government has been successful in restraining labor demands for higher wages and in maintaining industrial peace through the Arbitration Court, the Labor Employment Acts of 1966 and 1968, and above all through its influence on the trade unions. Moreover, the government has a strong influence on wages through the employment and wage conditions stipulated for its own employees,

such as those in the Port Authority of Singapore, the Public Works Department, and the Public Utilities Board, who constitute a great part of the total labor force. The government also employs some laborers under contract, as in the construction of public housing and dockyards, whose employment and wage conditions affect those in the private sector. Wages in the public sector thus play a significant role in determining wages for the whole economy, which is a major reason for the wage stability of the 1960s. The present high investment tempo, however, is encouraging strong pressure from workers for higher wages, while simultaneously Singapore is beginning to feel the shortage of both skilled and unskilled workers. In February 1972 the National Wages Council, comprised of workers, employers, and government officials was set up to recommend gradual wage increases consistent with increasing productivity and to forestall economic retardation due to abrubtly rising wages. Restraining wage increases in the face of labor shortages is a new problem for Singapore and an important one since her manufactures must compete in the export market.

Singapore's one and only asset is manpower – skilled and unskilled, hardworking and intelligent. In the end, no matter how much the government spends on developing an industrial infrastructure, the basic ingredient for success is still that of labor productivity. Singapore must rely on the skill of its laborers and entrepreneurs in manufacturing

goods at a cost low enough to compete effectively with exports from China, Hong Kong, South Korea and Taiwan. Exporting is a dynamic concept: if Singapore can produce inexpensive, quality goods, it can extend its export markets. Successful marketing will depend on labor productivity, which in turn can result from the workers' efforts to work harder, longer, and more intensively, or to the entrepreneurs' ability to organize production factors more efficiently and to use better machinery. Thus to increase labor productivity so as to enhance the competitiveness of Singapore goods in the international market, both laborers and entrepreneurs must play their respective parts. Tentative comparisons show that Singapore's labor productivity was higher than that of South Korea and Taiwan [45]. The gross value-added per worker in Singapore was $6,957 in 1968 compared with $4,360 in South Korea in 1968 and $2,920 in Taiwan in 1963. Higher labor productivity implies primarily that Singapore workers operate with more and better machinery and that more capital has been invested in Singapore industries. Figure 2 shows the trend in labor productivity for 1959-1971.

Political and monetary stability in a developing country will inevitably attract foreign investors. Before the 1960s, there was little foreign investment in manufacturing industries in Singapore but it increased from $157 mil. in 1965 to $1,006 mil. in 1970 and to $1,180 mil. in

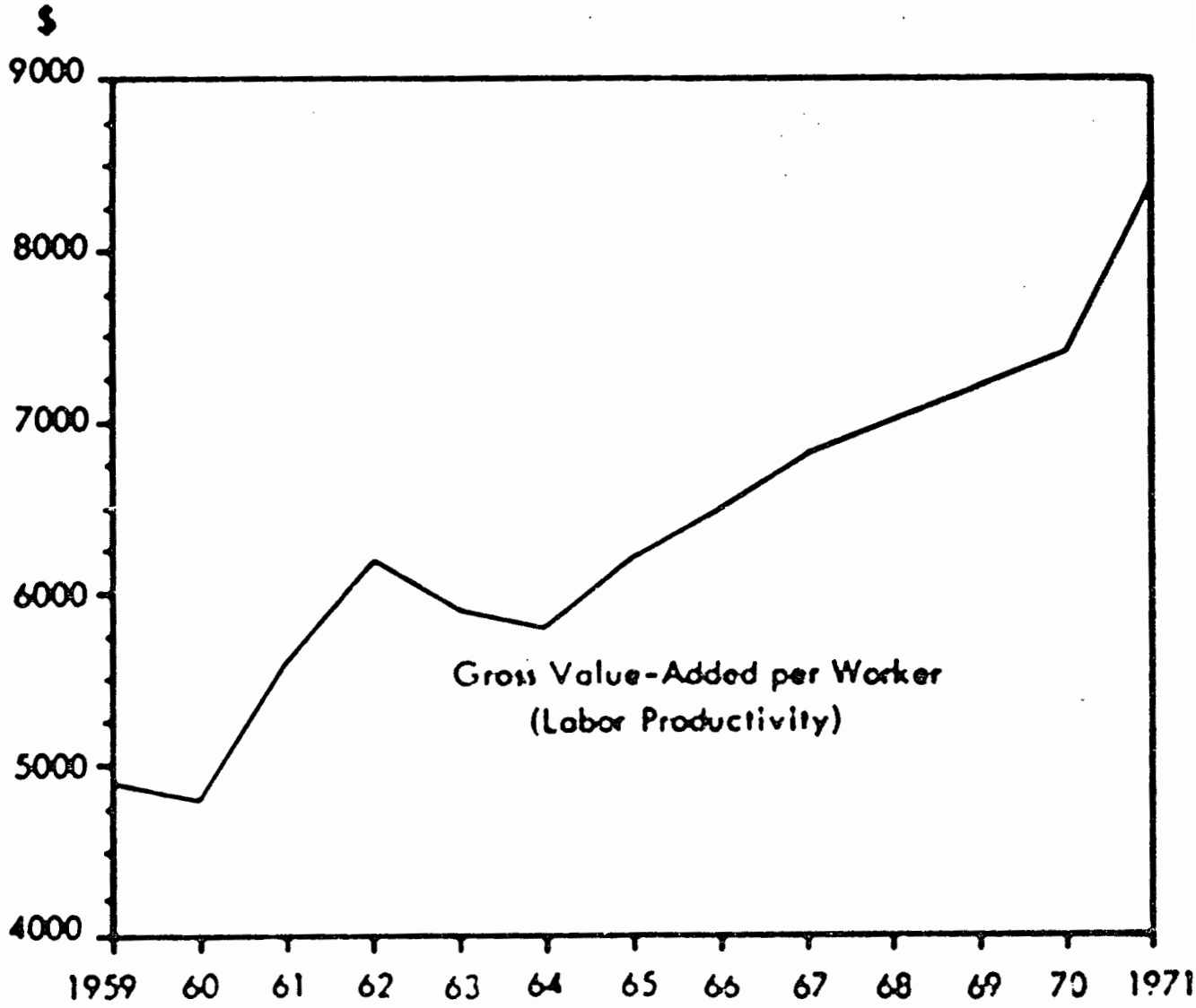


FIGURE 2. Gross Value-Added per Worker, 1959-1971.

Source: Journal of Developing Areas, January 1973, p. 185.

mid-1971 (Table XXII). Up to the end of 1970, the U.S. led with 44.7%, followed by the U.K., the Netherlands, West Germany and Japan. For actual investments by mid-1971, the order of the first three remained the same and Japan moved to fourth place; simultaneously the U.S. and West Germany had large approved commitments being implemented. As of mid-1971, foreign investments were mainly in the petroleum industry (53%), metal, engineering, and transport equipment industries (10.5%), electrical-electronics industries (9%), and chemical industry (6%). If approved commitments are included (see 1970 figures in Table XXIII), the relative shares of the petroleum and the metal, engineering, and transport equipment industries were even greater.

Because of the emphasis being placed on foreign capital investment, the local feeling is that the industrialization of Singapore is spearheaded by foreign enterprises and that government policy encourages big, sophisticated industries (usually foreign) to the neglect of small, indigenous firms with local management and capital. There is thus a conflict between foreign capital and economic nationalism. Foreign investment is welcomed to help penetrate the export market and to bridge the technological gap rapidly. At the same time, however, domestic enterprises, relatively speaking, play a lesser role in industrialization in terms of capital investment, value-added, output, and export orientation; moreover, failures are more prevalent

Country of Origin	1965 Actual Investment	1965 Percent	1966 Actual Investment	1967 Actual Investment	1968 Actual Investment	1969 Actual Investment	1970 Actual Investment	1970 Approved Commitments	1970 Total	1970 Percent	Mid-1971 Actual Investments	Mid-1971 Percent
United States	23	14.6	24	27	53	131	343	422	765	44.7	402	34.1
United Kingdom	45	28.6	53	85	103	122	199	95	294	17.3	246	20.8
Netherlands	40	25.4	46	62	81	104	183	57	240	14.0	220	18.6
West Germany	..	....	..	1	1	1	3	103	106	6.2	5	0.4
Japan	27	17.4	30	31	34	36	68	20	88	5.2	81	6.9
Others[a]	22	14.0	86	97	182	206	210	6	216	12.6	226	19.2
Total	157	100.0	239	303	454	600	1,006	703	1,709	100.0	1,180	100.0

TABLE XXII.

Foreign Investments in Manufacturing Industries in Gross Fixed Assets, 1965-71. (In millions of S$)

Note: Gross fixed assets exclude cost of land in most cases. Investments were estimated at original cost and are not comparable to values of fixed assets in table 6, which were book values after allowance for depreciation.

a Including Switzerland, Sweden, France, Australia, Canada, Norway, Denmark, Italy, Hong Kong, and other states.

Source: Hwang Peng Yuan, "Foreign Investment in Singapore" in (Paper delivered at the Symposium on Singapore in the International Economy, University of Singapore, 19 March 1972), table 3.

Major Industrial Sectors	1965 Actual Investment	1965 Percent	1966 Actual Investment	1967 Actual Investment	1968 Actual Investment	1969 Actual Investment	1970 Actual Investment	1970 Approved Commitments	1970 Total	1970 Percent	Mid-1971 Investments Made	Mid-1971 Percent
Petroleum	99	63.1	115	145	195	265	555	385	940	55.0	625	53.0
Metal engineering and transport equipment	19	12.1	34	44	64	78	103	136	239	14.0	124	10.5
Electrical and electronics	1	0.6	4	7	9	21	82	76	158	9.3	107	9.1
Chemicals	5	3.2	12	22	28	30	59	10	69	4.0	72	6.1
Timber, paper and printing	3	1.9	6	6	9	33	33	27	60	3.5	48	4.1
Textiles and garments	7	4.5	14	14	46	47	52	8	60	3.5	52	4.4
Food and beverages	9	5.7	25	26	29	31	34	5	39	2.3	47	4.0
Others	14	8.9	29	39	74	95	88	56	144	8.4	105	8.9
Total	157	100.0	239	303	454	600	1,006	703	1,709	100.0	1,180	100.0

TABLE XXIII.

Foreign Investments in Manufacturing Industries by Major Sectors, 1965-71. (In Millions of S$)

Source: Hwang Peng Yuan, "Foreign Investment in Singapore", table 4.

among the domestic firms. The government argues that the emphasis on big industries is a more effective stimulant to increased productivity and long-range economic development, particularly since resources and qualified personnel in various development institutions are so limited. Thus in the process of industrialization, there is a financial "gap" with respect to small industries. The importance of small industries should not be overlooked, particularly in Singapore where traditionally there have been numerous small private enterprises. In 1970, approximately 85% of the 2,800 industrial firms engaged less than 50 persons each, yet these small units employed about 40% of all workers in manufacturing and accounted for about 25% of the value-added in manufacturing. In industrial countries, big manufacturers with capital-intensive methods of production and small ones with labor-intensive methods can exist and progress side by side. They are complementary in that the large firms cannot, or cannot economically, produce all the required intermediate and accessory parts and thus have to rely upon small manufacturers, workshops, and repair shops as subcontractors. For instance, in Japan, around an automobile company there are many small shops which supply parts on contract for assembly in the factory. Likewise in Singapore, industrial development should encourage the parallel growth of big and small manufacturers with varied production techniques. In an attempt to rectify the financial gap, facilities

for small industries to obtain equity capital and long-term loans from the capital market are being provided by the Government's Development Bank of Singapore.

The development policy since 1968 has shifted the emphasis back from employment-to productivity-creating industries. With the revival of entrepot trade with Indonesia and the industrialization program in full swing, the employment situation has improved and by the end of 1971 Singapore was near the full employment mark. Singapore is now interested in promoting sophisticated industries based on advanced technology and skills and therefore less sensitive to wage increase pressures. With high investment and a tight labor supply, such pressures may unfavorably affect exports. At this stage of development, Singapore cannot depend entirely on labor-intensive, low-skill and "sweatshop" industries for her exports. Instead the emphasis on technology-based firms would increase industrial productivity as a whole in the future, would accentuate the production of high quality products, and would shield Singapore from the ill effects of rising wages disrupting the export drive. These are the objectives of Singapore's development policy, though Singapore has yet to attain a mature stage of development.

III. ECONOMIC GROWTH

As a prelude to formulating a tentative but feasible development plan for Singapore, a review of western economic development and growth theories was undertaken to determine whether any of them could be applied to Singapore's case. Would there be a growth model or a combination of models that would fit Singapore's situation? Could Singapore profit from the experience of the West? The alternatives open to Singapore are numerous but only the most suitable and promising ones merit consideration because the economic survival of Singapore is, needless to say, a matter of life-and-death. The uncertainties of the future can only be offset by careful planning and control and the selection of optimal strategies.

A. GROWTH MODELS AND CHOICE OF TECHNIQUES

It is important to first sort out and delineate the differences between economic growth and economic development. According to Robinson [53], "economic growth" is defined as increases in aggregate product, either total or per capita, without reference to changes in the structure of the economy or in the social and cultural value systems; "economic development" is defined to include not only growth but also social and cultural changes which occur in the development process.

Intuitively, one feels that economic growth is far easier to theorize about than economic development since the range of phenomena that a theory must consider and explain is far more restricted – as, for example, in modern neoclassical growth models. It is easy to say, and has been said often, that growth models applied to less developed countries must take into account noneconomic factors; it is far harder to say how and even to define the relevant noneconomic factors. The key word in the last sentence is "relevant". There has been a great deal of sociology and social anthropology literature discussing noneconomic factors that change in a society undergoing economic development [3], [11], [24]. The problem is that very little has been done to integrate economic and sociological theories of development. Sociologists, reasonably enough, tend to assume the economic system as given or exogenous and study its effects on the social and cultural value systems, while economists do the reverse. One of the reasons economists find it so difficult to bring noneconomic factors into their development theories is that economic theories are almost always implicitly based on a general equilibrium model that assumes social, cultural, and even institutional factors to be fixed.

The theory of general equilibrium seeks to describe the structure and operation of an economy as a whole. In terms of this theory, the economic system can be viewed as a gigantic computing machine which tirelessly grinds out the

solutions of an unending stream of quantitative problems: the problems of the optimal allocation of labor, capital, and natural resources, the balance between the rates of production and the consumption of thousands of individual goods, the problems of a proper division of the stream of current output between consumption and investment (or savings), and many others. In this theory, there are three conditions necessary for growth. These conditions do not represent a theory of growth but instead are really definitional – they are necessary but not sufficient. The first condition is that profitable opportunities must exist – opportunities for producing outputs whose value exceeds that of the inputs – for this defines growth. There are two sources for such opportunities. The first is changes in tastes (changes in the aggregate preference structure), and the second is potential innovation, or possible changes in the present means of production. Joseph Schumpeter [31] specifies five classes of new combinations that can generate growth: (1) the introduction of a new good, (2) the introduction of a new method of production, (3) the opening of a new market, (4) the conquest of a new source of supply of raw materials, and (5) the carrying out of the new organization of any industry. These changes can be viewed as technical changes in the sense that they reflect the application of new knowledge to the solution of economic problems.

The second condition for growth is that individuals or groups who wish to exploit the profitable opportunities must exist. There are really two requirements here, one informational and one motivational. Some person or group must see that a profitable opportunity exists and also must desire to exploit it.

The third condition is that capital that can be used to exploit the profitable opportunities must exist. The individuals or group seeing new opportunities must be able to divert adequate resources to exploit the potential innovation.

Along with the theory of general equilibrium on which they are based, these conditions define a schema within which one can classify various theories of growth in terms of the conditions they emphasize or consider to be limiting. Schumpeter, for example, by and large assumes the first condition: the existence of a stock of potential innovations. He is mainly concerned with the last two conditions in his discussion of the role of the entrepreneur and of the mobilization of capital in economic development. Nurkse, for example, largely assumes the first two conditions and concentrates on the role of capital as the limiting factor [25]. Hirschman, in his writings, considers all three conditions [17]. In his discussion of linkages, he attempts to show how investment can lead to the emergence of more profitable

opportunities and how this can induce an increase in the supply of entrepreneurs.

Preoccupation with the problem of economic growth is not, as some may think, exclusively the domain of contemporary economic throught. Great economic thinkers of earlier eras were also profoundly concerned with the nature and causes of the growth of the "wealth of nations". In the history of economic thought, such figures as Adam Smith, David Ricardo, Thomas Robert Malthus, John Stuart Mill, and Karl Marx are prominently associated with theories of economic growth. With the passing of these figures, who, with the exception of Marx, belong to the "Classical School", interest in this area waned. But the importance of the subject is such that in the twentieth century it virtually underwent a rebirth in the hands of such economists as Schumpter (mentioned earlier), Alvin Hansen, Roy Harrod and Evsey Domar. The neo-classicists, Solow and Swan, then developed their basic growth model in 1956.

Common to all the theories derived by the aforementioned contributers is the emphasis placed, in greater or lesser degree, upon capital accumulation – the growth of the physical means of production – as the mainspring of economic growth. Because savings are clearly a prerequisite of investment in capital stock, all these writers assign a prominent place to savings in their theories. The precise role of savings in the growth process is, however, subject to

varied interpretation. Smith [33], Ricardo [28] and Mill [22] regard savings as virtuous almost without qualification; because they assume that all savings is translated by the "invisible hand" into investment, there is a clear and positive causal relation between savings and the rate of growth. Others, too, assign a broadly positive role to savings, but not in so unqualified a way. Malthus [20], for example, argued (well in advance of his time) that nations could have, with respect to savings, too much of a good thing. He emphasized that too much savings implies too little consumption, thus causing a tendency to "glut" and a consequent under-utilization of capital – a condition inimical to sustained growth. Under the influence of Keynes, Hansen [40] later propounded a somewhat similar theme, suggesting that investment opportunities may not be sufficient to absorb the savings potential of an advanced economy, a situation resulting in "secular stagnation". Savings as a potential embarrassment to the economy was later spelled out more precisely in the Keynesian-influenced models of Harrod [14], [19] and Domar [38], where it is shown how a "wrong" amount of savings – either too much or too little in relation to investment demand – can derail the economy from a smooth path of growth.

According to Adam Smith [33], capital accumulation resulting from savings, together with the growth of a population imbued with the propensity to "truck, barter and

exchange", lead to a division of labor, the introduction of machinery, and consequent increases in the productivity of labor. All of these combine to promote economic development. But Smith believed, for all this, that a "degree of opulence" will eventually be reached where the stock of capital is so large, in relation to other resources and to the "extent of the market" (effective consumer demand), that the rate of profit will fall, thus discouraging capital accumulation and further growth.

The theories of Ricardo and Mill also point to eventual stagnation, though their explanation for this outcome differs from Smith's. The law of diminishing returns in agriculture is the cornerstone of their analysis. To state the matter only cursorily, a positive rate of profit motivates savings and capital accumulation, thus raising income, the demand for labor, and ultimately, because of increased wage rates, the size of the population. A larger population generates an increased demand for food which, because of the operation of the law of diminishing returns and the scarcity of arable lands, will be forthcoming only at higher prices. Although the population will ultimately return to a subsistence wage level, money wages must now be permanently higher because of the higher price of food. In this process, rent has also risen, "and...little consequently remains for the profits of stock". Capitalists are thus robbed of their motive for accumulation, and growth ceases.

Thus it can be said that in classical models of growth, the real wage is fixed by the needs of the workers and profit is the residual surplus.

Then along came Marx who, like Ricardo, argued that capital accumulation would eventually reduce the rate of profit and thus the rate of economy growth. But where Ricardo built upon the concept of diminishing returns, Marx depends upon the phenomenon of the declining rate of "surplus value". This is the return to the capitalist that results from his exploitation of the working class: the wage payments that the capitalist must make to the laborer is something less than he derives from the laborer's output. Over time, however, the exigencies of competition induce capitalists to substitute machinery for labor. But machinery, unlike human beings, yields no surplus value, and thus the rate of profit will fall, as the ratio of capital machinery to labor rises, In attempting to counteract the falling rate of profit, capitalists increase the hours of work and reduce the wages of labor, thus worsening the plight of an already exploited class [64].

In Schumpeter's system, the burden of economic growth is borne by the entrepreneur. The rate of economic growth in the capitalist system therefore depends in a critical way upon the size, quality and activity of the entrepreneurial class. But entrepreneurs operate in fits and starts. Their innovations tend to appear in clusters, and

therefore economic growth is not a smooth and steady affair: its path, in fact can be traced only through the ebb and flow of the business cycle. Schumpeter's extensive analysis of economic development stands out in bold relief in a period, roughly between 1870 and 1930, when there appears to have been a general flagging of interest in the problem. Throughout this period, the major part of theoretical endeavours were devoted to problems of a microeconomic character: broadly speaking, concern centered on achieving the efficient allocation of scarce resources. Thus, for example, Alfred Marshall [21], the leading economist of his time, devoted relatively little space to the question of growth.

The catastrophic world depression of the 1930s prompted a rude awakening of interest in the growth problem. As the depression wore on to intolerable length, the belief arose among some economists that the advanced countries were in the grip, not merely of a cyclical disturbance, but of "secular stagnation". This view, of which Hansen was the foremost exponent, centers around the notion that advanced "mature" economies eventually experience a permanent decline in investment opportunities. "The approaching cessation of population growth and the disappearance of new territories for settlement and exploitation" reduce the incentive for private investment, and these are not sufficiently compensated by the third major factor, technological change.

Using an essentially Keynesian analysis, which calls for the distribution of product or output to be governed by investment and thriftiness, Hansen concludes that investment demand falls below the economy's potential, and the rate of which the economy is capable, with unemployment becoming a chronic condition. This concept of stagnation, it should be mentioned, is much less extreme than that of J. S. Mill and the Classical School in general. For the latter, it meant the complete cessation of growth, output, and population; for Hansen, it is a matter of development at a decreasing rate, with general underemployment of resources. In contrast, another Keynesian-influence model – the Domar model of economic growth makes no prediction of any kind. It derives the conditions concerning savings, investment and the rate of growth of income required for the stable growth of the economy – that is, growth with neither unemployment of resources nor inflation. It does not, however, specify whether these conditions can actually be realized.

One of the most interesting and controversial issue raised in the contemporary literature on the underdeveloped countries concerns the relative contribution to economic growth made by different sectors of the economy. As noted above, the classical economists, in their analysis of growth, drew a sharp distinction between the agricultural and non-agricultural sectors of the economy. Because they assumed the operation of the law of diminishing returns in

agriculture but not in other sectors (constant or increasing returns to scale were regarded as characteristic of manufacturing), they tended to view agriculture as the ultimate restraint on economic (as well as population) growth.

Though contemporary writers no longer recognize the classical distinction with respect to diminishing returns, they have for different reasons continued to use the same dichotomy of economic sectors. A close negative correlation has been found to exist between levels of per capita income and the share of national output originating in agriculture. Consequently, there are many who believe that industrialization of the presently underdeveloped and predominantly agricultural countries is the key to rapid economic and high levels of per capita income. As a matter of economic policy, there appears to be something resembling consensus among the governments of the underdeveloped countries in favor of industrialization, though in the heavily populated countries with chronic food problems, such as India, there is clear awareness of the strategic role that agriculture must play in economic development.

Somewhat related to the theoretical controversy over agriculture versus industry is the discussion of the concept of balanced growth. The poor countries, struggling with the problem of raising their levels of living, find themselves caught up in what has been termed a "vicious circle of poverty". According to this conception, the low

income of these countries is attributable to the low productivity of labor, which is in part a function of an adequate supply of physical capital. But the shortage of capital results partly from the persistently low levels of saving — caused, in turn, by low income, thus completing the circle. (See Nurkse [25].)

"Balanced growth" has been proposed by Nurkse as a means of breaking this vicious circle and stimulating economic development. Because low incomes and a consequent lack of demand generally spell failure for any heavily concentrated investment in a single consumer-goods industry, it is suggested that investment be diversified over a broad range of such industries. Each industry, it is argued, will then generate, through its factor payments, a demand for the goods of the other industries sufficient to keep all of them viable. Investment projects that might be individually unprofitably would, taken collectively, be profitable. However, this theory can be faulted in that it overemphasises the demand side of the problem, to the neglect of the equally important supply side. Inadequate supplies of factors of production in underdeveloped countries, particularly capital and skilled labor, may make diversified and simultaneous investment projects unfeasible by sharply increasing the costs of production of all industries as they compete for the limited supply of factors.

A study by Rostow [30] attempts to develop a broad picture of the development process from the earliest, "traditional" society to the most advanced, "high mass-consumption" economy. He postulates and describes five distinct "stages" of economic development and attempts to account for the forces inherent in each stage that provide for the transition to the next. There are several difficulties inherent in Rostow's approach however. Aside from the problem of accurate historical dating of the stages, a more cogent problem is that of explaining why any particular transition occurred precisely when it did and not at some other time.

Another article by P. T. Bauer [3] deals with changes in occupational distribution of the labor force among primary (mainly agricultural), secondary (mainly mining, manufacturing and construction), and tertiary (mainly commerce, transportation and services) sectors that occur during the process of economic development. The author debates on the interesting question of whether or not growth is accompanied by a relative increase in the percentage of the labor force engaged in tertiary activities. This subject is of particular relevance to Singapore's case and although there is some empirical evidence to support one view, there is also some to support the other. A clear-cut answer to the question is not forthcoming yet.

The neoclassicists came on the scene sometime in the mid-1950's. The basic neoclassical growth model was developed

by Solow [57] and Swan [60] in 1956, followed by further exposition on the part of W. A. Lewis [46], and Fei and Ranis [10] in their discussions on the development of the labor-surplus economy. Lewis focused primary attention on investment without worrying about the mechanisms by which it works, and discussed how structural change could be brought about by raising the profits and expanding the share of the capitalist sector. Fei and Ranis extended Lewis's model in a creative way by considering the factors affecting the mechanism of interdependence between the technical, institutional and aggregate preference structures in the system.

A more detailed look at the neoclassical models would thus be appropriate since Singapore's labor and production problems could best be solved by application of such modern growth theories. In the neoclassical model, the rate of interest is the supply price of capital and wages are the residual. Several economists have concentrated their efforts on this model and have applied it to the field of economic development and growth for developing and underdeveloped countries.

1. Neoclassical Growth Models

The basic neoclassical growth model assumes one sector (or one commodity output) growth and is further characterized by the following simplifying assumptions:

a. Production requires the use of two factors of production labor and capital.

b. The production function is of the form: $Y=F(K,L)$, where Y is income (= output), K is capital, L is labor.

c. The production function is subject to constant returns to scale.

d. Capital is of a non-depreciating, consolidated variety. It is physically the same product as consumption goods, and that when output is used to add to capital stock, it lasts forever.

e. Labor grows at a constant percentage natural rate (n).

f. Saving (equals investment) is a constant fraction of income.

Following on from the above assumptions, particularly that of constant returns to scale, which enables output per factor and the marginal products of factors to be expressed as functions of the ratios of factors, the economics of growth can be mathematically analyzed and defined:—

using assumption (b) above, $Y = F(K,L)$ .....(1)

dividing thru' by L, then $\frac{Y}{L} = F\left(\frac{K}{L}, 1\right)$

therefore $\frac{Y}{L} = f(k)$,

where $f(k) = F\left(\frac{K}{L}, 1\right)$

and $k = \frac{K}{L}$, the capital-labor ratio

$$\text{therefore} \quad Y = Lf(k) \qquad \ldots\ldots(2)$$

$$\text{and} \quad y = f(k), \qquad \ldots\ldots(3)$$

$$\text{where} \quad y = \frac{Y}{L}\text{, the per capita income.}$$

Geometrically, eqn. (3) means that y is a function of k and if this intensive form is assumed to be 'well-behaved' then the function should emanate from the origin, be monotonically increasing, be everywhere concave from below and have zero slope asymptotically; this f(k) is illustrated in Figure 3 below. The marginal products of capital and labor can similarly be expressed as functions of k:

$$\text{using (2)}, \quad Y = Lf(k)$$

$$\therefore \frac{\partial Y}{\partial L} = f(k) + L \cdot \frac{df}{dk} \cdot \frac{dk}{dL}$$

$$= f(k) + L \cdot f'(k) \cdot \frac{-K}{L^2} = f(k) - f'(k) \cdot \frac{K}{L}$$

$$= f(k) - kf'(k). \qquad \ldots\ldots(4)$$

$$\text{Also} \quad \frac{\partial Y}{\partial K} = L \cdot \frac{df}{dk} \cdot \frac{dk}{dK} = L \cdot f'(k) \cdot \frac{1}{L}$$

$$\therefore \frac{\partial Y}{\partial K} = f'(k) \qquad \ldots\ldots(5)$$

Thus the marginal products of the two factors can be written in terms of f(k) and its derivative only. The marginal product of capital at any k is equal to the slope of f(k) in Figure 3. In equilibrium, under perfect competition, this will equal the rental price of capital (or the rate of interest). Assumption (f) above supplies a proportional saving function in the form, $S = sY$; $0<s<1$ $\qquad \ldots\ldots(6)$

where S = saving

s = constant average and marginal propensity to save

Y = income.

Investment I is, by definition, equal to the time rate of change of the capital stock and all saving is invested:

$$I \equiv \frac{dK}{dt} = S \qquad .....(7)$$

and assumption (e) gives the labor supply function:

$$L = L_0 \cdot e^{nt} \qquad .....(8)$$

where n = constant proportional natural rate of growth in the supply of labor.

Also L is assumed to be a constant function of population and hence the supply of labor (and population) is fixed at any given moment of time and grows by the constant percentage n during each interval of time.

Solving this model now for its steady state growth solution, i.e., when $\frac{dy}{dt} = 0$ or when income and labor grow at the same rate,

then using, $y = \frac{Y}{L}$

$$\therefore \frac{dy}{dt} = \frac{1}{L}\cdot\frac{dY}{dt} + \frac{Y\cdot d(\frac{1}{L})}{dt} = \frac{1}{L}\cdot\frac{dY}{dt} - \frac{Y}{L^2}\cdot\frac{dL}{dt}$$

$$\therefore \frac{1}{y}\cdot\frac{dy}{dt} = \frac{1}{yL}\cdot\frac{dY}{dt} - \frac{1}{L}\cdot\frac{dL}{dt} \qquad .....(9)$$

From (8), $\frac{dL}{dt} = L_0 n e^{nt}$

$$\therefore \frac{1}{L}\cdot\frac{dL}{dt} = \frac{L_0 n e^{nt}}{L_0 \cdot e^{nt}} = n. \qquad .....(10)$$

Substituting in (9),

$$\therefore \frac{1}{y}\cdot\frac{dy}{dt} = \frac{1}{yL}\cdot\frac{dY}{dt} - n$$

$$\therefore \frac{dy}{dt} = \frac{1}{L}\cdot\frac{dY}{dt} - nf(k). \qquad \ldots\ldots(11)$$

From (1), $\frac{dY}{dt} = \frac{\partial Y}{\partial K}\cdot\frac{dK}{dt} + \frac{\partial Y}{\partial L}\cdot\frac{dL}{dt}$

$$= f'(k)\cdot\frac{dK}{dt} + (f(k)-kf'(k))\cdot\frac{dL}{dt}\ .$$

Substituting in (11),

$$\therefore \frac{dy}{dt} = \frac{1}{L}\left(f'(k)\cdot\frac{dK}{dt} + (f(k)-kf'(k))\cdot\frac{dL}{dt}\right) - nf(k).$$

Using (6), (7), (10) and (3),

$$\therefore \frac{dy}{dt} = \frac{1}{L}\left(f'(k)\cdot sY + (f(k) - kf'(k))\cdot nL\right) - nf(k)$$

$$= f'(k)sy + nf(k) - nkf'(k) - nf(k)$$

$$= f'(k)sf(k) - nkf'(k).$$

Setting $\frac{dy}{dt}=0$ for steady state growth,

$$\therefore sf(k) = nk \qquad \ldots\ldots(12)$$

$$\therefore n = \frac{sy}{k} = s\cdot\frac{Y}{L}\cdot\frac{L}{K} = s\cdot\frac{Y}{K} = \frac{s}{v} \qquad \ldots\ldots(13)$$

where $v = \frac{K}{Y}$, the capital-output ratio.

The lower of the two curves in Figure 3 is sf(k). The ray through the origin is nk with slope n. Steady state growth occurs at y_1 and k_1 where the two curves intersect:

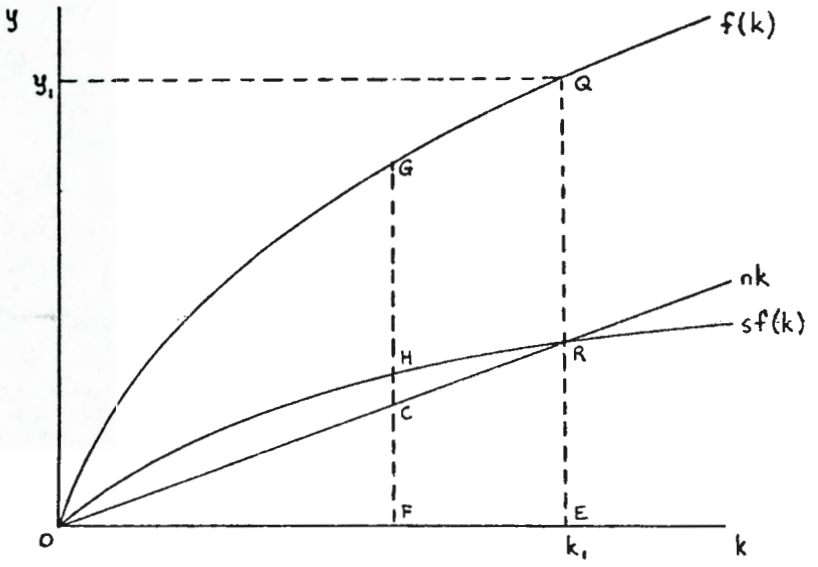


Figure 3.

The economic interpretation of the two curves illustrated are as follows. First, sf(k) shows saving per capita ($=\frac{sY}{L}$). Since f(k) is income per capita, therefore the vertical distance between the two, RQ in steady state growth, is consumption per capita. The ray nk shows the investment per capita required to equip new additions to the labor force with the same capital per head as the existing labor force, or in short the capital requirement. Turning now again to the steady state point (k_1, y_1), if k happened to be disturbed above k_1 it would return there since saving per capita (= investment per capita) is less than the capital requirement required to preserve the higher k-ratio. Similarly, if capital per head were less than the equilibrium stock k_1, output would be represented by FG and savings by FH, whereas FC would be sufficient to equip the additional workers with

the same capital per man as existing workers, so that HC would be available to increase capital per head. Thus capital per head would increase above F and would continue to do so until it reached equilibrium at k_1. Thus steady state growth exists and is unique in this model. Both the existence and the stability of this state of equilibrium derive from two assumptions implicit in the diagram; that there are sufficiently diminishing returns in production, and that at some output per head saving is more than sufficient to equip new workers with the capital per head available to existing workers. Also the assumed constancy of s and n is crucial to this model.

Using the model described above, R. L. Crouch [37] in his April 1973 article investigates the effects of foreign aid on the economic growth of the recipient country. Foreign aid can be supplied in several forms:

a. Grant aid in the form of capital goods
b. Grant aid in the form of consumer goods
c. Assistance which directly cuts the birth-rate, e.g. technical know-how concerning birth-control devices and practices.

The impact of foreign aid on economic growth will hence depend on the type of aid given. The country is assumed to be 'closed' to everything but the foreign aid transaction. First, the impact of aid in the form of capital goods will be considered. Since the growth model is of the

one-commodity class, the assumption is made that the donor country insists that the aid must be used to augment the capital stock. The aid is a flow. When it is received, and for as long as it is received, the recipient country's capital-labor ratio rises from k_1 to k_2 (see Figure 4; ignore, for the moment the dotted curves). Aid-supported per capita income and per capita consumption are y_2 and R'Q' respectively. This situation will persist only so long as the aid is received. As soon as it is withdrawn, all ratios slump back to k_1, y_1, and RQ since, at k_2, left to its own devices, the recipient country's capital requirement (MN) exceeds its per capita saving (MR'). The benefits of aid prove to be transitory. In the case of grant aid in the form of consumer-goods, at the point in time when the donor country gives an equal amount of such aid, the recipient country's income per capita rises to y_4 (where $y_4-y_1=k_2-k_1$). The aid-supported production function $y'=g(k)$ is drawn parallel to the domestic production function which assumes that per capita aid is a constant real amount while the programme is in force. The per capita saving function shifts to $s'g(k)$, which is parallel to $sf(k)$. Now, at k_1, per capita saving (YS) exceeds the capital requirement (YR) and, thus, the capital-labor ratio rises to k_3. This increases income per capita to y_3 and consumption per capita to TU. This situation will persist only so long as the aid is received. As

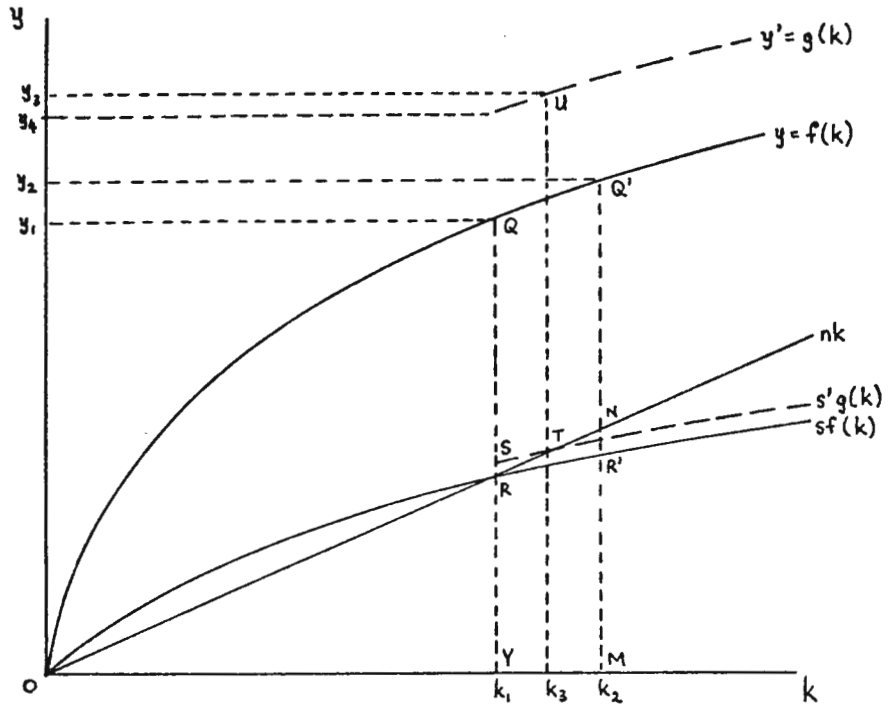


Figure 4.

soon as it is withdrawn, all ratios drop back to their non-aid levels, k_1,y_1, and RQ, since, at k_3, per capita saving without aid support does not meet the necessary requirement to sustain k_3 as a viable capital-labor ratio.

If per capita consumption is used as a welfare criterion, then, in general, for plausible values of s (say, average propensity to save = 0.05 for an under-developed country), consumer good aid is to be preferred to capital good aid. It can be seen by inspection of Fig. 4 that TU exceeds R'Q' so long as the marginal product of capital does not exceed 100%, (i.e., the slope of the production function does not exceed unity).

The basic neoclassical model implies, then, that foreign aid in the form of grants of capital goods and/or consumer goods only has a transitory impact on per capita consumption. There is however a form of assistance that developed countries can render to under-developed countries which may have a permanent effect on the latter's welfare even in the context of this basic neoclassical model. Population-or birth- control know-how when transmitted to the under-developed country would achieve this result. To show that foreign aid may have permanent long-run benefits, it is necessary first to modify certain of the model's assumptions concerning n and s. Dealing with n first, Crouch postulates that the rate of population growth as a function of income per capita follows a path like that illustrated in Figure 5(b) below. This outcome is due to the interaction of the birth rate b and the death rate d, as functions of per capita income, plotted in Figure 5(a). Crouch explains the curves as follows – looking at the death rate, below $\bar{y}$, which is subsistence income, d soars and approaches infinity asymptotically as death through starvation increases. Above $\bar{y}$ it declines asymptotically towards its physiological minimum $\bar{d}$. Life expectancy is increased as private and public expenditure on health, hygiene and sanitation increases with rising per capita income. As for the birth rate, it decreases to zero below subsistence income $\bar{y}$ as the death rate mounts

and successful conception and pregnancy is inhibited by malnutrition. Between $\bar{y}$ and y_2, parents are motivated by long-term goals of living off their off-springs in their golden years to have many children and consequently the rate of population growth reaches a maximum. (At y_2, b and d are parallel.) From $\bar{y}$ to y_1, b increases in the process of increasing the family to its optimum size after subsistence income is passed. Between y_1 and y_2, the birth rate is decreasing but the death rate is decreasing even more rapidly.

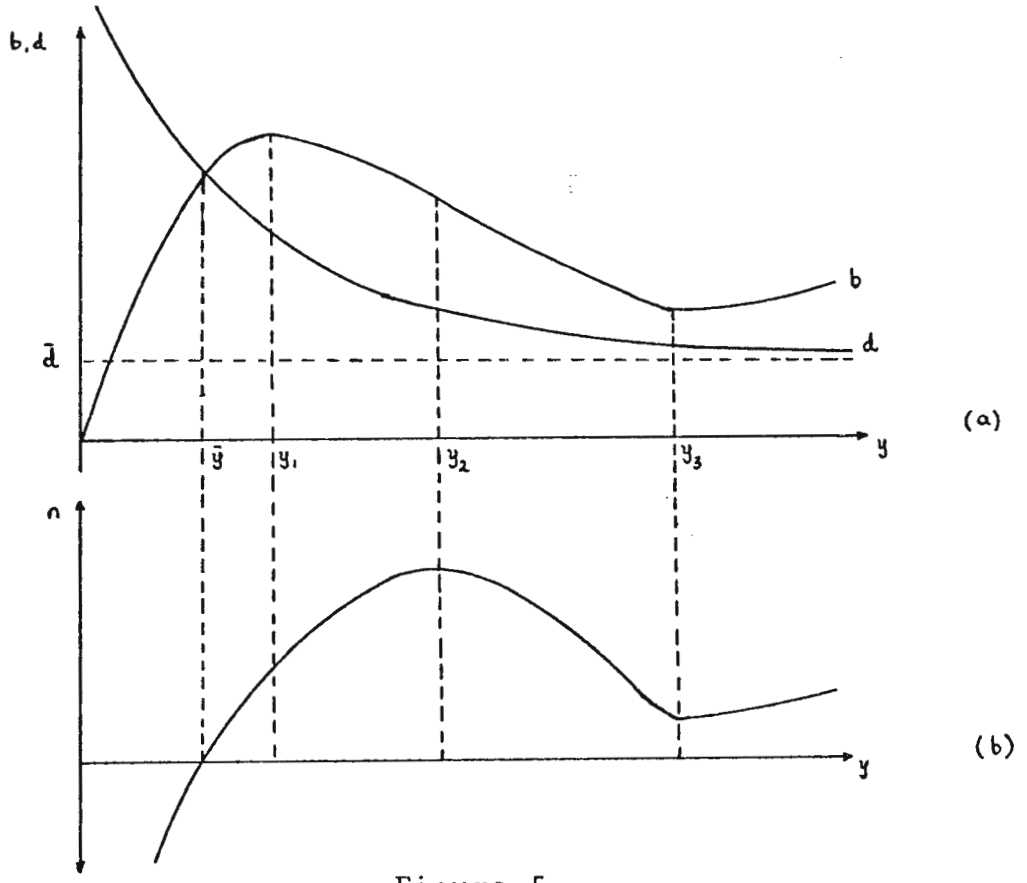


Figure 5.

A crucial change occurs at y_2. The large family gives way to the small 'atomistic' family. Children are no longer an efficient form in which to accumulate capital. At these levels of income per capita, the cost of children in terms of food, clothing, education, entertainment, foregone earnings, etc. have risen while the material benefits legitimately expected from them have declined as they stay in school longer, leave home and marry earlier and, being themselves more mobile, provide a less certain source of retirement support. Thus, the birth rate is reduced rapidly. Children are born now simply because they generate psychic income for their parents. Population growth reaches a minimum at y_3 (where b and d are again parallel) which could be negative. Crouch asserts that above y_3, the birth rate starts climbing again because children, as consumer durable goods, are superior with a positive income elasticity of demand. When the rate of population growth as a function of y is as shown in Figure 5(b), it generates a capital requirement curve like that labelled nk in Figure 6. The per capita saving function in this diagram is also shown with 'bends' in it. To a large extent, it reflects the behavior of n at various incomes per capita already discussed. For example, levels of income per capita below subsistence $\bar{y}$, per capita saving will be very low. As y increases and children become consumer durable goods, they cease to be efficient forms of capital accumulation so per

capita physical saving increases as the rate of population increases declines. At very high y's, the marginal physical product of capital declines and this reduces the propensity to save.

With the curves shown in Figure 6, the possibility of steady state growth equilibrium now exists at three different points, (k_1,y_1), (k_2,y_2) and (k_3,y_3). k_1 and k_3 are stable in that after a local disturbance of k in their neighborhood, k converges back on them. Steady state growth at k_2 is unstable. The slightest divergence from k_2 sends k to either k_3 or to k_1, depending on whether the disturbance increased or decreased k. By definition, an under-developed country would be in steady state growth at k_1.

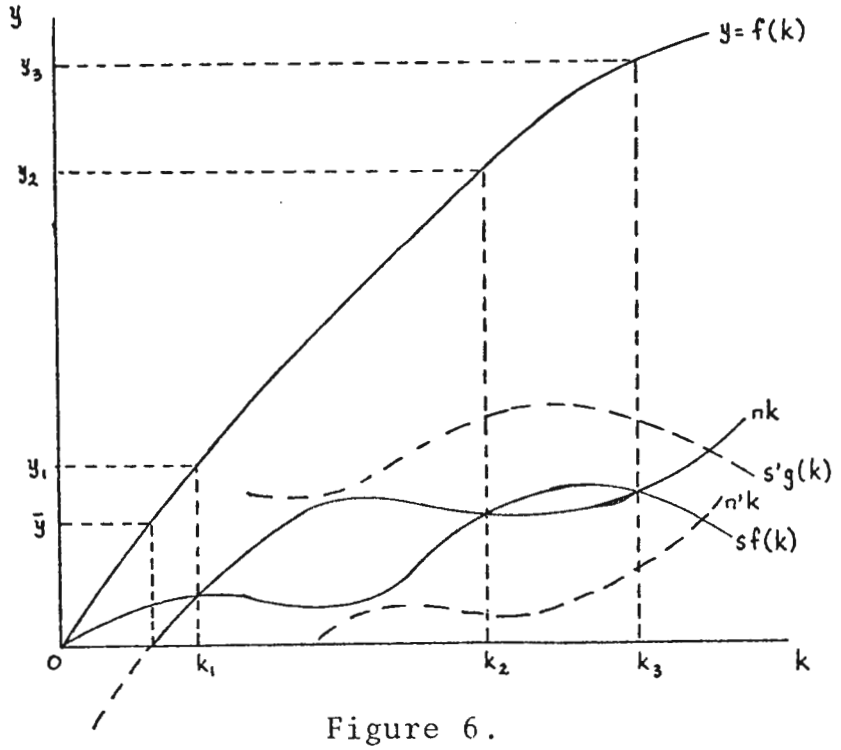


Figure 6.

Considering now the foreign aid issue again in the context of this amended neoclassical growth model, Crouch explains that should aid in the form of capital goods be generous enough to raise the under-developed country's capital-labor ratio above k_2 then that country would be able to 'take-off' under its own steam and finish up at k_3. This is the theory of 'minimum critical effort' or 'big push'. Moreover when the aid is withdrawn, the previously under-developed country would remain at k_3.

When the grant is in the form of consumer goods, the same results are obtained if the aid is large enough to 'lift' the sf(k) curve clear of the concave from below section of the nk curve, i.e. $k_1 \rightarrow k_3$ if $sf(k) \rightarrow s'g(k)$.

Aid in the form of population control assistance also forces $k_1 \rightarrow k_3$ if the nk curve is depressed down to the n'k curve. Hence the recipient country would take-off past k_3 and then fall back to k_3 when the aid is withdrawn. In summary, the paper's main findings are that for foreign aid to have long-run beneficial effects on the economic development of the recipient country, there must exist a low-level equilibrium trap condition (k_1, y_1) and furthermore the aid must be above a critical minimum.

In H. G. Johnson's article [41], some of the critical assumptions of the basic model are relaxed. According to Johnson, the assumption that a constant proportion of income is saved is completely arbitrary and theoretically indefensible.

In an economy characterized by population growth and technical progress, an approach more in keeping with the context of equilibrium growth would be to assume that saving is motivated by a desire to achieve a preferred ratio of wealth to income. Graphically, this case can be illustrated as in Figure 7 below. P_1 represents the initial situation, with

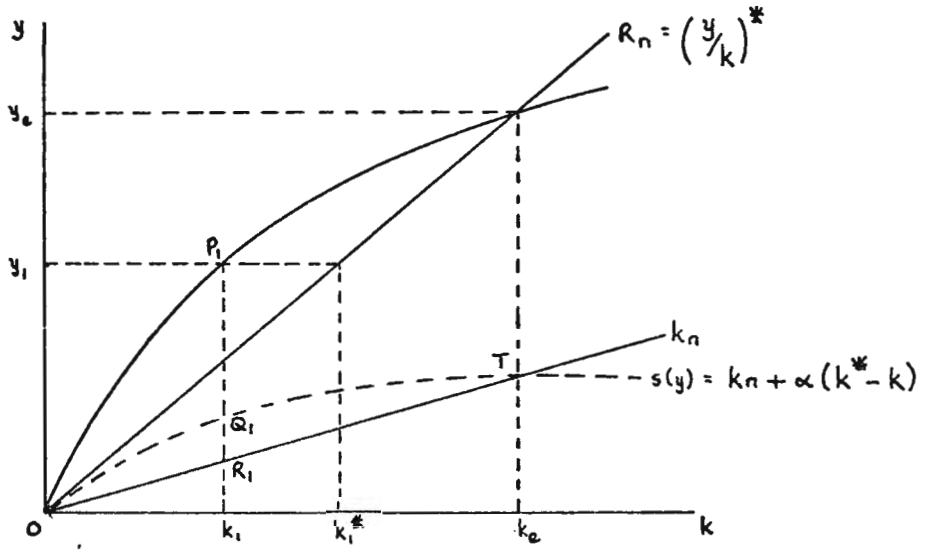


Figure 7.

capital-labor ratio Ok_1 and output per head of Oy_1, the initial ratio of output and income to non-human capital being represented by the slope of OP_1 and the non-human-wealth-to-income ratio by its reciprocal (or slope with reference to the y-axis). The desired ratio of non-human wealth to income is represented by the slope of OR_n with reference to the vertical axis. To achieve this ratio, the average individual is assumed to save from current income a fraction α of the difference between his desired and his actual

non-human capital stock (Ok_1^*–Ok_1) over and above what must be saved to maintain the current non-human-capital-to-income ratio (R_1k_1); specifically his savings (Q_1k_1) are equal to $k_1n + \alpha(k_1^* - k_1)$. His savings behavior at other levels of income is derived in the same way to yield the savings curve $s(y) = \alpha(k^* - k) + kn$. Hence Johnson derives a new savings curve which may be more realistic than that assumed in the basic model.

Johnson next looks at the effect of relaxing the assumption that capital once accumulated lasts forever. Suppose capital depreciates by "evaporation". Therefore a certain fraction (d) of the existing stock disappears at each moment of time and consequently replacement requirements are a constant fraction of the stock. This model is represented in Figure 8 below, where Ok_n as before represents the saving required to equip the additional labor resulting from the growth of the labor force with the same capital per head as existing workers, $Ok(d + n)$ represents the gross saving required to make good depreciation of the existing stock and equip new workers with the same capital as existing workers, OY represents gross output as a function of the capital-labor ratio, and $OY'(=OY - dk)$ represents net output after allowance for depreciation. Analysis of the model then follows on the usual approach utilized earlier.

Johnson finally allows for the possibility of growth through exogenous technical change. Customarily in growth

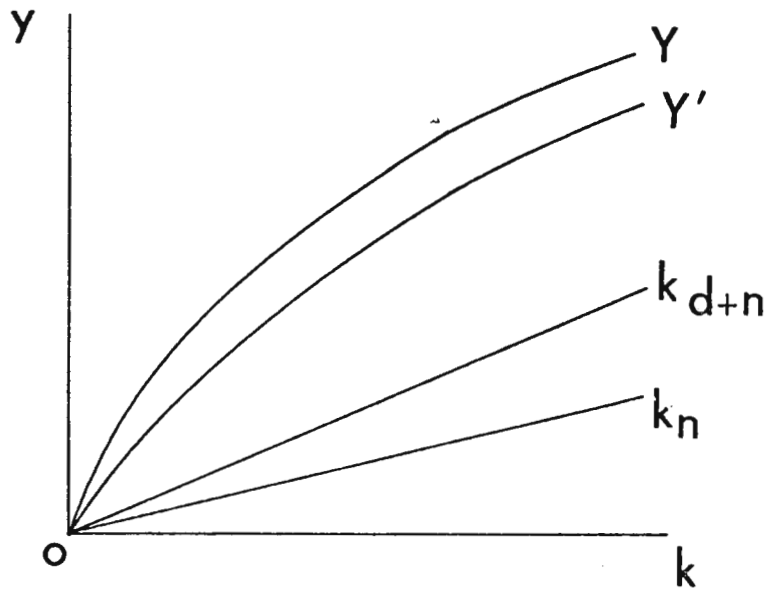


Figure 8.

theory it is assumed that technical change occurs at a constant rate, but that it may be neutral, biased towards labor saving or biased towards capital-saving, "neutrality of innovation" being capable of definition in two major ways. One is Hicksian neutrality, defined as innovation that raises the marginal productivity of both factors in the same proportion. The other is Harrodian neutrality, defined as innovation that, at a constant rate of return on capital, would keep the capital-to-output ratio constant and raise output per man at the same rate as technical progress occurs. The diagrammatic model can easily be extended to take account of technical progress of the Harrod-neutral type, since such progress can be equated to an increase in the effective supply of labor (the quantity of labor measured in

"efficiency units") at a rate equal to the rate of technical progress. All that is required is to re-label the abscissa of Figure 3 as the ratio of capital to efficiency-units of labor, and to re-define n as the sum of the natural rate of growth of the labor force (p) and the rate of growth of efficiency-units supplied per man associated with Harrod neutral technical progress (t). The diagram can then be used to demonstrate the convergence of growth of the economy on the equilibrium rate (p+t), determined by the exogenously given rates of population growth and technical progress. Other cases of biased technical progress cannot be readily analyzed diagrammatically, especially those defined in terms of the Hicksian concept of neutrality.

Finally, Sommers and Suits [58] in 1971 came up with a simple three-equation model of economic growth and tested their model with data covering a cross-section of 100 countries compiled and published by the United Nations for 1966. The three equations of interest are:

$$\text{a.} \quad GCF/GNP = I(GNP/N) \qquad \ldots\ldots(1)$$

$$\text{b.} \quad dN/N = P(GNP/N) \qquad \ldots\ldots(2)$$

$$\text{c.} \quad r = G(GCF/GNP, dN/N) \qquad \ldots\ldots(3).$$

Equation (1) expresses the fraction of GNP devoted to gross capital formation (GCF/GNP) as a function of the level of GNP per capita (GNP/N); (2) expresses the annual rate of population growth (dN/N) as a function of GNP per capita; (3) expresses the rate of growth (r) of GNP per capita as

a function of the fraction invested and the rate of population growth.

Using linear regression analysis, the following results and curve fits were obtained for each of the three functional equations:

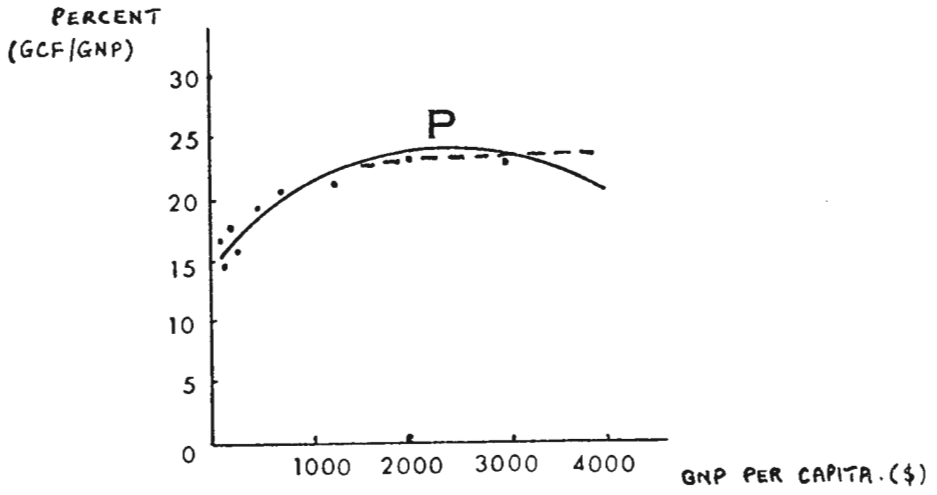


Figure 9.

Regression equation (1):

$$GCF/GNP = 14.93 + 0.0105(GNP/N) - 2.42 \times 10^{-6} \frac{(GNP)^2}{(N)}.$$

This equation indicates the strong tendency for richer nations to invest not only more, but a larger fraction of GNP than poor nations do, at least up to a certain point, P. Beyond P, the negative quadratic term in the equation causes a reduction in the investment ratio as GNP per capita exceeds about $2,200 per year. This 'behavior' does not seem to be borne out by the test data points and perhaps the dotted line would be a better representation. In any case, the decline of economic growth rates with rising affluence is somewhat

unlikely. A more likely trend would be a tapering-off of income invested as affluence brings with it an upward shift in values towards more recreational and leisure satisfaction. Also the large positive constant term in the above equation means that there is no lower threshold that must be surpassed before growth is possible. A reformulation of this equation that would permit the investment ratio to vanish as GNP per capita approaches zero would perhaps improve the model.

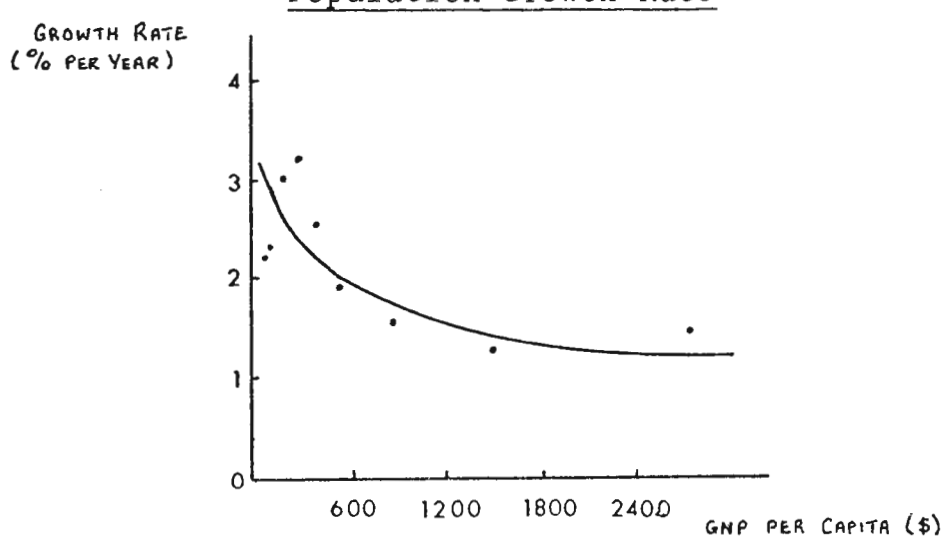


Figure 10.

Regression equation (2):

$$dN/N = \frac{1080}{(GNP/N) + 400} + 0.8.$$

The curve is a rectangular hyperbola with axes translated to provide the best fit by eye. However the resulting fit shown above still leaves substantial curvature unaccounted for.

According to this equation, population grows more slowly in richer than in poorer nations. This is a familiar-enough proposition but could perhaps be further refined over the range of per capita GNP, as done by Crouch in his paper. The population growth rate falls with an increase in GNP per capita but according to Crouch's paper, it will start increasing again beyond a certain high income per capita point. It must be recognized that the dependency of population growth rate on income per capita cannot be exactly predicted by any mathematical equation since birth rates and death rates are functions of so many economic and social factors.

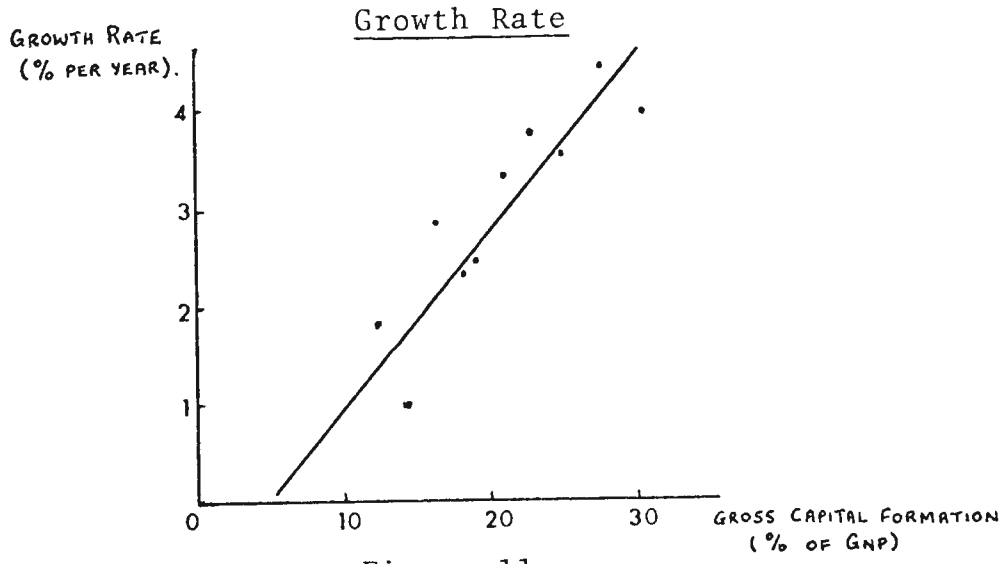


Figure 11.

Regression equation (3):

$$r = 0.173\ (GCF/GNP) - 0.299(dN/N).$$

As would be expected, this equation shows that countries that invest a larger share of GNP tend to grow more rapidly, while

given the percentage invested, growth of per capita GNP tends to be most rapid where population is growing most slowly. Comparison of observed with calculated growth rate is shown in Figure 11 above. The fit of the curve appears reasonably close.

Although this little model does produce results in general conformity with recognized economic expectations about the growth process, it has a number of shortcomings that should be borne in mind. For instance, important growth factors were neglected entirely. On one side, no recognition has been accorded investment in human capital in such forms as education and public health. On the other side, no allowance has been made for the impact of rising output and increasing population density on resource exhaustion and environmental pollution. Perhaps this explains why the paper arrived at a finding that when speed of growth predicted from the equations is compared with the historical experience of a number of nations, it appears that the simulated path under-estimates growth rates of poor nations and over-estimates them for rich nations. The impact of education tends to be greater in poor nations than in developed rich nations because any little morsel of technical knowledge gained by the population in an under-developed nation would cause a substantial increase in economic output whereas a rich nation's already well-advanced technology would require a knowledge discovery of substantial proportions before any

increase in economic output could be recorded. Hence the impact of education on a developed nation tends to be overestimated.

2. Choice of Techniques

Granted that in Singapore's case the logical way to go would be industrialization for economic growth, the question of choice of technique now arises. The question of choice of technique is a question of product (in scale, type and quality) as well as method of production, and must be viewed dynamically – the choice available changes over time and is itself subject to choice in the sense that a country can choose to develop techniques in one direction rather than another. It has been interpreted almost exclusively as a question of capital-intensity of the method of production. The neoclassicists defined capital intensity as capital per worker (or K/L ratio). The complex and perhaps insoluble problems of measurement of capital are ignored; labor is also assumed homogeneous and unambiguously measurable. Inferior techniques are defined as those which produce the same output as some other technique using more of at least one factor and no less of any other. Efficient techniques are those which are not inferior to any other technique among those available. In Figure 12 below techniques A, B and C all produce the same amount of output. A is an inferior technique, while B and C are both efficient techniques. Since efficiency, as defined here, is a relative concept, involving

comparison of one technique with another, a technique which is initially efficient may become inferior as new techniques are developed. Thus before the development of technique B, both A and C are efficient techniques. When B is developed, A becomes inferior using more of both factors than B, though C remains efficient. Some might argue that the use of labor

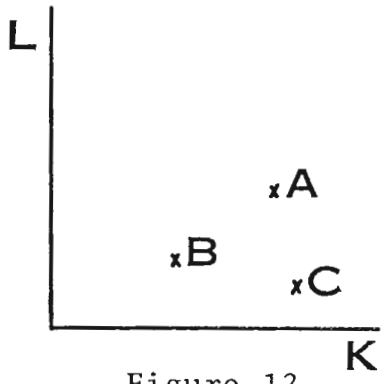


Figure 12.

in developing countries with surplus labor confers a benefit on society and not a cost. This argument, which involves various complications of time preference among other factors, is valid in certain cases only. For the moment, it is assumed that it only pays society to adopt efficient techniques.

The assumption of an infinite or very large number of efficient techniques of varying capital intensity means that full employment may be attained with any amount of capital available in relation to labor. The developing countries, with relatively little capital available per head, can attain full employment by choosing techniques

which are labor intensive as compared with those appropriate to the developed countries. In diagram 13 below, position D is appropriate to the resource availability of the developed country, with OK_1 and OL_1 of capital and labor available respectively, while U is appropriate to the developing country with OK_2 and OL_2 of capital and labor. On the assumption of

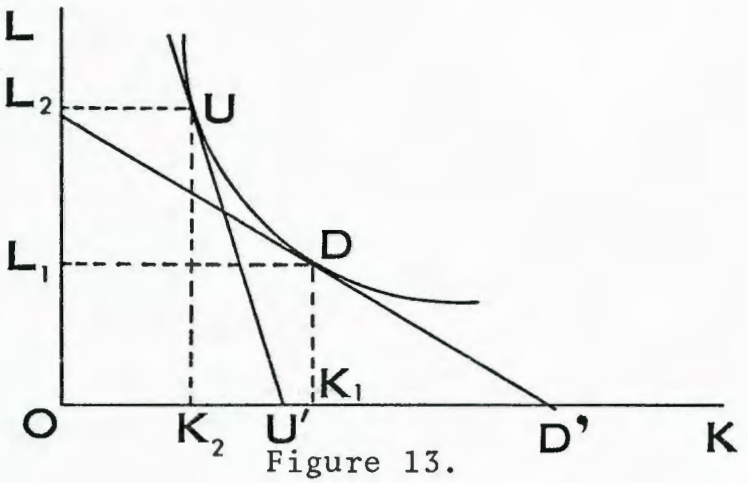


Figure 13.

the marginal productivity theory of income distribution, such positions will automatically be adopted as the relative price of capital and labor adjusts to the balance of supply and demand and the choice of technique in turn adjusts to the relative price until equilibrium relative prices represented by UU' and DD' in the diagram bring about the full employment choice of technique. This type of analysis leads to full employment as the equilibrium solution for all types of economy. Observed unemployment is explained with reference to inappropriateness of relative factor prices – a result of institutions leading to 'cheap' capital, minimum wage legislation, and trade union power. Developing countries which

in fact have relative factor prices KK' in figure 14, will end up at A with unemployment PQ (or greater if more people wish to work at the relatively high wage represented by KK' than the appropriate wage UU'). Sociological explanations

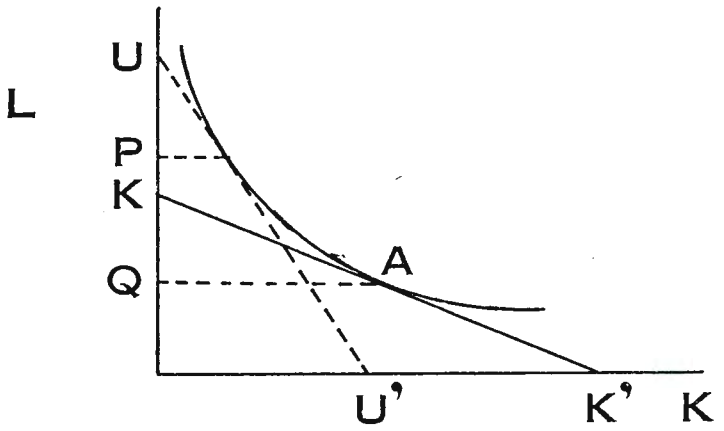


Figure 14.

of the observed unemployment and apparently fairly high capital intensity of production in developing countries have also been suggested — in particular they have been attributed to the tendency of Western and Western-trained managers to prefer to adopt the techniques of production to which they are accustomed, and their dislike of handling large numbers of men involved in the labor-intensive solution. The latter suggestion introduces a third factor of production, managerial effort, and illustrates the over-simplification involved in the two-factor analysis adopted above.

Increasing or decreasing returns to scale further complicate matters since the absolute availability of factors is then relevant to the determination of attainable

output levels as well as relative factor availabilities. The range of technique available may depend on the scale of output being considered. In so far as the neoclassical approach allows for non-constant returns to scale it does so in a way that maintains the assumption of a large number of efficient techniques available at each scale of production; thus the possibility of full employment for any relative and absolute factor endowment remains, given appropriate choice of technique.

In today's age, technological development makes scale a very important determinant of the choice of techniques and hence the above neoclassical treatment of the problem needs to be modified. (See earlier discussion of Johnson's work on this subject.) Machines tend to be designed for a particular level of production and are not divisible for smaller quantities of production, though they may be multiplied for larger. Each technical development is likely to be related to a particular production level. It is an observed fact of economic development that the scale of production for which new machines are designed tends to increase over time. The relative efficiency of the techniques will depend partly on the scale of production adopted. One technique may be inefficient compared with a later technique at the scale of output for which the later technique is designed. A further scale factor is involved in the production of the machines. To the extent that the

production of machines is itself subject to economies of scale, the price of the machines will depend on the quantity in which they are being currently produced. In the diagrams and discussion so far, it has been assumed that the quantity of capital involved in each technique is unambiguous. One reason that this is not so is that the timing of inflows and outflows differs for different techniques and hence the discount rate used influences the measure of quantity.

The range of techniques available is thus likely to be far more limited than that assumed by the neo-classical approach, and may even, for a single product, approach the technologically determinist view of no choice at all. Stewart [59] summarized the position diagramatically as follows:

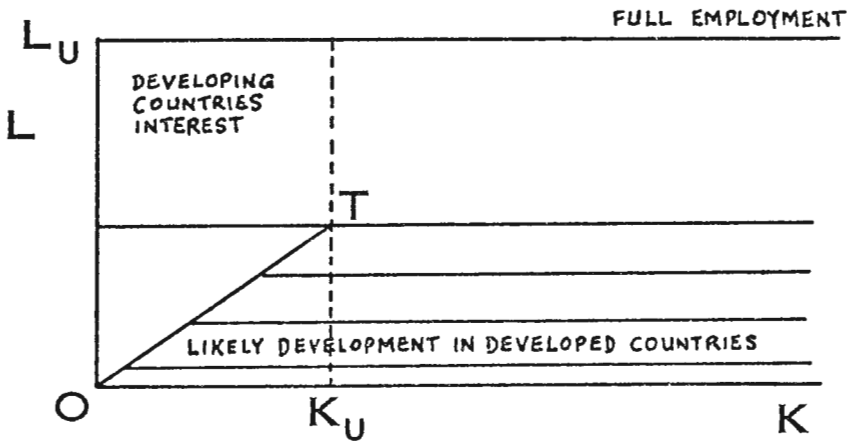


Figure 15.

Let T be the technique currently introduced and installed in developed countries for some new product. With such a technique, assuming it is representative of all production, the

developing country can never realize full employment, OL_u, if available capital is OK_u. Its interest lies in the development of techniques which save capital and use labor, i.e., those in the North West quadrant. But techniques are not likely to develop in this direction in developed countries, but in the opposite direction, to the South East — i.e., increased capital intensity and reduced labor intensity of production, or to the South West. Developments in the South West in some ways help the developing country, since they economize on capital and hence make more output possible in relation to capital. They may increase or decrease capital requirements per worker (depending on whether they are below, or above the line OT). Historically, developments have tended to increase the average capital per worker over time, and hence made lower the attainable employment with a given capital stock. Developments to the South East reduce the output attainable with a given capital stock while also reducing attainable employment. There is thus a conflict of interest between the needs of the developing countries and the developments in the developed countries. The conflict may only be reversed if efforts are made, in the developing or developed countries, to develop and produce the techniques the developing countries need — i.e., those in the North West quadrant in the above figure. This discussion has neglected the undoubted existence of dual economies both within developed and developing countries, such that a different

set of factor prices, scale and attitudes informs two (or more) sectors within each economy. A range of factor prices is also to be found between different countries within the developed world. This means that techniques being innovated, produced and adopted at any one time need not come from a single source in terms of factor prices. For example, innovations emanating from Japan's small-scale sector will reflect a different set of factor prices, and one more appropriate to developing countries, than innovations from large-scale companies in the U.S. However, since research, development and innovation tends to be concentrated in the more advanced (i.e., higher real wages) sector of developed countries, and among the most advanced of developed countries, and since the small-scale sector of developed countries is subject to similar trends, in terms of movement of factor prices, if not identical absolute conditions, as the rest of the economy, the existence of such duality does not substantially alter the picture.

The discussion up to now has been in terms of different methods of producing the same product. A product orientated approach does extend the effective choice of techniques. An important aspect of choice of technique is choice of product to fulfill various needs; introducing this aspect widens the available choice. In addition, dividing up production into processes also suggests a wider choice. So, in fact, a developing country like Singapore does have

a wide selection of techniques to choose from. The limiting factors will not be capital and labor in general but more so will be foreign investment, skilled labor and managerial talent. The next section deals with these factors more specifically within the Singapore industrialization program.

B. INDUSTRIAL GROWTH

In the 1960's, Singapore's industrialization objectives were: (1) to solve the unemployment problem, (2) to induce a high growth rate of GNP and income per capita, and (3) to reduce its economic dependence on entrepot trade. As Singapore today tries to ride the wave of a possible world trade recession, the energy crisis and inflation, it can be said that objective No. 1 has been achieved totally while objectives 2 and 3 have only been partially attained. Singapore is at a painful middle point in the transition from a labor-intensive economy. Its labor-scarce economy is badly in need of high-level skills and the acquisition of such is at present uncomfortably slow. This turnabout has come for Singapore after a decade or so of careful planning and hard work. However there is still a long way to go and the challenge is still there for Singapore to advance and forge ahead of its neighbors in the industrialization contest.

Oshins [51] postulated a conceptual analysis of why industries cannot get started in developing countries. According to him, the process of getting needed new industries

successfully in operation in developing countries can be visualized as a problem of transferring a large number of appropriate packages of industrial resources from a sort of world pool of such resources to another pool of sound opportunities located a long distance away over rough terrain. Between the source and the destination there are eleven high barriers that must be crossed. But only four roads now run between the two locations. This concept is illustrated in Figure 16. The four common roads from source to destination are:

a. Complete local sponsorship and action with no significant foreign inputs.
b. Local sponsorship and action with purchased or contributed inputs from abroad as required.
c. Joint foreign and local sponsorship and action through joint ventures.
d. Wholly foreign sponsorship, ownership, and action through wholly-owned subsidiaries or branches.

The eleven barriers that must be crossed are:

1. Appropriate plant, process and product design.
2. Acceptable costs for the foreign inputs required.
3. Relevant experience in operating the type of industry involved and in the developing country involved.
4. Entrepreneurial skills to put the whole project together.
5. Adequate capital.

A CONCEPTUAL ANALYSIS OF WHY INDUSTRIES CAN NOT GET STARTED IN DEVELOPING COUNTRIES

THE ELEVEN BARRIERS

POOL OF INDUSTRIAL RESOURCES	Appropriate Design 1	Acceptable Costs 2	Experience Relevant 3	Entrepreneurial Skills 4	Capital 5	Technical Know-How 6	Managerial Skills 7	Local Acceptability 8	Local Incentives 9	Foreign Acceptability 10	Foreign Incentives 11	Total Barriers	UNIVERSE OF SOUND AND NEEDED NEW INDUSTRIES IN DEVELOPING COUNTRIES.
Road A Wholly Local	–	NA	–	–	–	–	–	+	+	NA	NA	6	
Road B Local With Purchased or Contributed Foreign Inputs	–	–	+	–	–	+	+	+	+	–	+	5	
Road C Joint Ventures	–	–	+	+	+	+	+	±	+	±	+	3	
Road D Wholly Foreign	–	–	–	+	+	+	+	–	–	±	+	6	

\+ indicates barrier generally passable
– indicates barrier generally not passable
± indicates barrier sometimes present, sometimes not.

Figure 16.

Source: International Development Review, p. 9, 1970.

6. Adequate technical know-how.
7. Adequate managerial skills.
8. Acceptability of the arrangement to the local government and community.
9. Positive incentives for the local participants to want the enterprise to succeed.
10. Acceptability of the proposed arrangement to the foreign participants if any.
11. Positive incentives for the foreign participants to be concerned with the long-term success of the enterprise.

As the figure illustrates, there are from three to six unbridged barriers on each of the common roads. As can be expected, the road with the least is the joint venture route.

Perhaps the most interesting of all the foreign investments in Singapore at the moment is that of Rollei-Werke, the German leader in photographic equipment. Rollei has put Singapore well on the road to becomming a modern precision engineering center. It proposes to invest no less than S$200 million in the republic by 1980. The Singapore investment, Rollei's only manufacturing operation outside Germany, will eventually be even bigger than the parent plant, whose total investment now is only $42 million. A prominent feature of Rollei's operation is that the camera models and equipment manufactured in Singapore are not being made elsewhere, not

even in the parent plant in Germany. This specialization means that the bulk of the local production can be exported to the big European and American markets as well as Asian outlets. The Singapore investment has put Rollei in the black again and has enabled it to compete with the Japanese. A major reason for Germany's interest in the region, of course, is the fact that labor costs in Germany have been going up by about 15% a year. Rather than import immigrant workers to beat the shortage, the German Government encouraged its businessmen to invest abroad.

Rollei is not the only high-technology industry to come to Singapore. Siemens (electrical components), Karl Hopt (electromechanical products), Vollmer (woodmaking machinery), Hilgeland (industrial machines), Sperry Rand (electric shavers and computer parts), Barden (steel ball bearings), Mitsubishi (shipbuilding), Philips (machine tools) and Teksons (cooling systems) have all set up operations in Singapore. North American Rockwell is expanding to make springs, valves and industrial sewing machines. The world's biggest manufacturer of precision miniature and instrument ball bearings, Nippon Miniature Bearing, has a plant producing 500,000 pieces a month — bigger than the current production at the company's Los Angeles plant. All these ventures have one thing in common: they must export or die. Their products are marketable world-wide and have prospects for future growth. They also contribute to technological

skill development, which is the way of the future. For these reasons, some areas of the local taxation laws have been amended to favor the foreign investor over the local investor.

On the other hand, the problem of inducing wholly local manufacturing firms to increase exports has many relevant factors – some unfavorable, some favorable. In spite of tax incentives for exports since 1967, firms have generally found it easier to shelter in the home market than to struggle in the export market. It takes extraordinary effort to compete in the overseas market as a newcomer, against established competitors such as Hong Kong and Japan. So, how can Singapore hope to achieve a break-through in its export offensive? One answer would be to seek new untapped markets and another to increase labor productivity, quantity-as well as quality-wise.

1. Market Expansion

A government exporting agency, INTRACO (the International Trading Company), was set up in 1968 to help promote Singapore exports. Its main function was to represent manufacturers in overseas markets and in international tenders through establishing overseas marketing offices and participating in international fairs and exhibitions.

As Singapore proceeds with its industrialization program, more and more outlets must be found for its products. What then are the major potential export markets

for her manufactures? Her neighbors, particularly Indonesia and Malaysia, are her traditional partners, for they not only buy her exports, but also provide raw materials such as timber, rubber, tin and pineapples, for her industries. In recent years, Singapore has endeavoured to launch a world-wide export drive to developing countries (for example, in East Africa and East Europe) as well as to developed countries (for example, Japan, the U.S., the U.S.S.R., Britain and those in Western Europe). The developed countries are important markets because their high income per capita causes a strong demand for manufactured goods. Moreover, having reached a high stage of industrial development with likely consequent high and rising wages, they must concentrate on manufacturing sophisticated and technology-based products, while importing manufactured consumer goods which are relatively labor intensive, such as low-grade textiles, plastics, and daily utility goods. To illustrate, recent Japanese policy is to import more manufactured consumer goods and to shift the industrial structure to the manufacture of high quality products. Since Hong Kong exports the major part of her manufactures to developed countries, Singapore could follow her example and hope to gain access to such markets.

For the sake of widening the export market, consideration must be given to the proposed ASEAN (Association of Southeast Asian Nations) cooperation in trade and development

or to associate membership in the European Economic Community. The ASEAN organization was started for political objectives, economic cooperation being only secondary. Comprised of Thailand, Malaysia, Singapore, Indonesia and the Philippines, it is hoped that if they import more from one another, all of their export trades would benefit from a wider market. If Singapore can then also join the EEC as an associate member, it is hoped that her manufactured products, such as textiles, footwear, rubber, leather and wood products, and precision instruments, would enjoy great demand all-round. In return, Singapore would have to open her door to EEC manufactured goods; this would stimulate competition and hence improved efficiency among Singapore industries in the long run. Besides, there would be a greater scope for exchange between Singapore's labor-intensive and EEC's capital-intensive manufactured goods. The world is now divided into great economic blocs, and Singapore as a mini-economy cannot stand alone. She must take an active part in regional cooperation, in one way or another, in order to secure a wider export market for her new, struggling industries.

2. Production Possibilities

One way to ensure continued demand for her exports would be for Singapore to manufacture products which are inexpensive but of good quality. Perhaps Singapore could learn from the experiences of Switzerland, Denmark and Japan. Relatively cheap Singapore labor can be put to good

use on labor-intensive processes like watch-making, pewterware and furniture manufacture, and assembly of electronic components. For many years, watchmaking has been associated with Switzerland and the phrase "Swiss watches" has been synonymous with quality. However, threats to the Swiss watch cartel have lately appeared in the form of SEIKO, BULOVA and quartz crystal watches [62]. It would be an opportune time now for Singapore to enter the world watch market with its own quality watches in the wake of all the confusion and changes now being undergone by the world watch industry.

Similarly, Danish furniture and home fittings have long been admired the whole world over for their quality and uniqueness. Such products are made with craftsmanship. Singapore's skilled artisans can emulate their Danish peers without much difficulty if they try. Already Singapore pewter products are being marketed all over the world and are gaining a reputation as quality products.

Assembly of electronic components is being performed in Singapore today. The local electronics industry is a relatively new industry. The parts are shipped from the U.S. and Europe and skilled hands in Singapore make light work of the simple assembly processes. The products are then re-exported. Consequently, the industry has a low value-added per worker figure. However, it is proving to be one of the

fastest growing industries in the state, with markets for its products more or less guaranteed.

As a result of such developments described above, there has been a tendency toward widening export products. In recent years, there have been more exports of technology-based products, precision engineering products, electrical-electronic products, watches, cameras, photographic-optical products, ships, rigs, offshore drilling platforms and ship-repairing. This is the right trend to adopt, and as long as the most efficient techniques of production are chosen, Singapore's exports will be able to stand up against any competition pricewise and qualitywise.

C. PUBLIC SECTOR INVESTMENT

As Singapore's development gathers momentum, there is clearly a need for highly specialized professional services in engineering and consultancy, international marketing, physical planning and development, housing, education, medicine, transportation, containerization, and research in the different scientific disciplines. Some measure of success has already been achieved in building up this expertise.

The service (or tertiary) sector has long been the subject of attention of numerous economists [7], [43]. The so-called Fisher-Clark theory of stages of development suggests that, as industrialization takes place in an economy,

the service sector tends to expand rapidly. This is particularly true in Singapore's case, where both industrialization and entrepot trade have necessitated an unprecedented expansion of the tertiary sector. The government's task in this respect has been made slightly easier by the British withdrawal east of Suez. The British turned over all their base facilities on the island to the government and these facilities have all been converted to civilian, commercial and educational use. Early in the pullout the larger part of the naval dockyard was transferred to Singapore for commercial operations, providing continuing employment for over 3,000 workers. Under Swan Hunter (UK) management and with the assistance of some seconded British naval officers and civilians in the transition stage from naval to predominantly commercial work, the Sembawang Shipyard has become a major dockyard in the region. The Normanton Oil Fuel Depot which, with a storage capacity of 180,000 tons, once kept the furnances of British warships burning, is now being run by the Port of Singapore Authority for the bunkering of merchant ships. Seletar airfield has become a general aviation support base. Changi, which is to be developed as a second international airport, now houses Lockheed, which services American aircraft from Vietnam and President Suharto's planes from Indonesia. British-held lands and buildings in Kent Ridge are to form the nucleus of new campuses for the University of Singapore and the Singapore Polytechnic.

What else should the government do to mobilize domestic resources more effectively? It should expand and modernize the port facilities to welcome the age of containerization. As a matter of side interest, it could emulate Liberia's liberal tax regulations for registration of merchant ships. The gross tonnage of merchant ships registered in Liberia in mid-1962 gave it the fourth largest merchant fleet in the world, but only one of the ships was actually Liberian-owned [1]. The Liberian government derived a substantial revenue from this source, about US$2 million annually in taxes and fees during the early 1960's. Today, Liberia's fleet is the biggest in the world [47]. In the past, flags of convenience have been the subject of much misunderstanding. For example, there is a belief that ships which fly flags of convenience are, if not old, generally decrepit and unseaworthy. Liberia is not, in fact, a refuge for dilapidated and unwanted ships as all its vessels are at least of post-1946 vintage. On registering a ship with Liberia, the owner pays an initial registration fee (US$1.20 per net ton) to Liberia. And except for an annual corporate registration fee and resident agent's fee totalling $250, plus an annual tonnage tax of $0.10 a net ton in respect of the ship, pays no further taxes to Liberia. Recently, the Singapore government took a step in the right direction by abolishing the tax on the balancing charge that would arise when a Singapore-registered ship is sold and the sale price is higher than the

written down or depreciated value. If this liability had not been removed, it would have discouraged local shipowners from upgrading their fleets through disposal of older vessels and possibly also acted as a disincentive to foreign shipowners from setting up shipping companies in Singapore to operate Singapore-registered ships.

Singapore's expansion of its port facilities should be directed at displacing Yokohama as the third largest port of the world. Shipping is undergoing a technological revolution, parallelled only by the replacement of sail by steam, with the development of unitized methods of handling cargo. The key to the containerization idea is the provision of a door-to-door service, moving freight from producer to end-user economically and quickly, with maximum protection for the goods from damage and pilferage. The movement of goods becomes a single through-transport system in a single container, from origin to final destination. In Asia, which has no shortage of dock labor, where labor-saving techniques and equipment mean increasing unemployment, the value of containerization is highly questionable. But the developing nations have little choice. Their cargo-handling system must be related to services being provided at the receiving end; they could hardly be insulated from developments elsewhere. Exporters must dispatch goods according to customers' specifications — and most purchasers want their goods shipped in containers. Much of Singapore's

containerized traffic on the other hand flows inwards, especially transit cargo bound for other Southeast Asian cities, and thus it is doubly important for Singapore to go all the way in the modernization of its port facilities. Containerization is here to stay.

Another field which is related in a way to shipping is tourism, and it also deserves urgent government attention. Although much has been written about the necessity of the less developed nations diversifying their exports, relatively little attention has been paid to the possibility of exporting invisibles, especially the sales of goods and services to tourists [36]. In Singapore, the problem is not one of inadequate tourist facilities. Enough has been done to develop and build hotels, luxury restaurants, nightclubs, island casinos and shopping complexes for the tourists. Now it is time to mount a concerted advertising and promotion campaign in the world's capitals to publicize the image of Singapore as a politically stable, attractive, and exotic pleasure-ground – as an 'Instant Asia' where the tourist could enjoy the material comfort he expects, as well as the excitement of a city on 'the crossroads of Asia'.

In order to live up to its reputation as a clean and attractive city, Singapore must first rid itself of the unseemly sight of squatters living in squalor, making do with temporary dwellings and utilities. If Singapore is to progress economically, planning measures aimed at tackling

the problems of the slum should be organically interrelated with socio-economic planning at the national level. It is heartening to note that public housing programs are being given top priority in the government's latest budget for 1974-75. (See Table XVIII.) Until all the slum dwellers are resettled in planned housing estates, there can be no progress made in the drive for national prosperity.

Finally, the present socio-economic structure being created by all this industrialization and modernization cannot last long if the present rate of population growth continues. As can be seen from Crouch's growth model discussed earlier [37], one of the ways that a country could improve its per capita consumption would be to control its population growth rate to a minimum level. To achieve this objective, the government's 'planned parenthood' program must be rejuvenated to put across the family planning message to the population. The people must be exhorted to have small families – an ideal size would be two children per family. Income tax relief regulations could be formulated to penalize taxpayers for having more than two children. Besides economic reasons for limiting population growth, there are also sociological reasons. For instance, parents with limited resources should concentrate on giving one or two children the maximum possible chance of climbing the educational ladder – otherwise their children would remain at the bottom of the economic scale. Singapore simply cannot allow its

population to grow out of control. Even with abortion and sterilization legalized, the limited resources that the island has will soon be exhausted unless drastic measures are taken to curb population growth. Property (land and houses) prices have skyrocketed, health services are being strained to the limit, public transportation problems are fast becoming acute, and literally the island is bursting at its seams.

D. MONETARY DEVELOPMENTS

The past five years have witnessed the development of two new important financial markets in Asia both located in Singapore. The first is the Asian dollar market, and the second is a free gold market.

The Asian dollar market is, in a sense, an offshoot of the Euro-dollar market that has developed very rapidly in the past decade; the Euro-dollar market is a large international money market in short-term U.S. dollars, transactions in which are negotiated and completed outside the United States. The emergence of the Asian dollar market makes it possible for non-resident U.S. dollar funds (and also certain other convertible currencies) to be placed with the banks in Asia for use in Asia. In the belief that there were fairly large U.S. dollar funds and also some funds of other convertible currencies in the hands of the Asians and non-Asians domiciled in Asia, and that these funds could be

pooled together and invested in Asia, some of the foreign bankers operating in Singapore thought that there was a scope for developing an Asian dollar market organized along the same lines as the Euro-dollar market. In particular, these bankers believed that the Asian dollar market could, on the one hand, provide profitable investment opportunities for persons holding relatively small amounts of U.S. dollars that because of their small size could not find investment outlets in the Euro-dollar market; and, on the other, meet the demand for dollar funds of relatively small firms in Asia. It was also thought that the Asian dollar market would have an added appeal to potential depositors and borrowers in Asia, since they could transact business on the basis of the spot quotations for various foreign currencies given to them by the banks in this market, thereby eliminating any exchange risks which they would otherwise have to bear if the banks in Singapore were simply acting as agents of the banks participating in the Euro-dollar market. The idea of establishing this market received a great fillip and became translated into reality when, in their desire to develop Singapore as an important financial center, the Singapore authorities amended its tax laws and abolished the withholding tax on dividends paid out to non-residents.

In its effort to become Southeast Asia's leading financial center, Singapore has Hong Kong to contend with.

The latter's rate of tax on corporate profits is the lowest in the region (15% compared to Singapore's 40%). However, being selected as the site for the Asian dollar market has helped Singapore to overcome some of its built-in setbacks. Moreover, the advantages that Singapore has over Hong Kong as a financial center are not few at all. A prosperous trading center like Singapore, with its pivotal geographic position, very well developed international banking facilities, a strong local currency backed fully by external reserves, a long-time record of political, monetary and exchange rate stability, and an ample and a rising level of external reserves (about US$2.44 billion as of the end of 1973), should have no difficulty whatsoever in attracting overseas finance into its bank coffers. Although the Asian dollar market has developed with relatively little publicity so far, the prospects for its growth are considered favorable by the banks participating in the market. At the end of April 1970, the outstanding amount in the market was estimated at about US$180 million. A more recent estimate in 1973 puts the figure between US$900 million and US$1 billion, with the Bank of America remaining the most important participant in this market. Concerning the banks, over the years, they have acquired the necessary experience and skills to engage in increasingly enterprising and sophisticated activities. The banks also possess excellent telecommunications facilities with banks and other major financial

institutions in New York, London and Zurich. An important ancillary point in this respect is that there is a time difference of only six hours between Singapore and London so that the banks in Singapore are open for at least a few hours at the same time that the London banks are open. (Hong Kong banks are open for less.) This makes it possible for Singapore banks to obtain the opening quotations in the London Euro-dollar market before closing for the day. In a market closely related to the Euro-dollar market, this is indeed a significant advantage.

Singapore's liberal exchange control laws are also conducive to the development of the Asian dollar market. Singapore maintains no restrictions on payments for imports and current invisibles, or on transfer of capital to and from other sterling area countries. There is also a complete absence of restrictions on nonresident capital movements, which together with Singapore's excellent international banking facilities makes it possible for the Asian dollar market to perform a very useful entrepot banking function. Another development which is expected to help promote the further growth of the Asian dollar market is the recent enactment of a new Bank Law in Singapore which permits, among other things, the banks to open secret numbered accounts for specified categories of clients (primarily foreigners). This 'Swiss' type of account should provide an added attraction to foreign depositors to place an increasing

proportion of their funds in the Asian dollar market, which offers a guarantee of safety, freedom from taxation, and secrecy.

However, in spite of optimistic predictions [52], [55], that the size of this market could well rise to US$2 billion in the next two to three years, there are still a number of problems that should be ironed out by the Singapore government as soon as possible. For one, Singapore's tax laws act still as a deterrent to those, expecially banks and other financial institutions, who want to invest in the region through Singapore. At present companies in Singapore are taxed at a flat rate of 40% on their income derived from within the island as well as on their income received in the republic from sources outside. Hong Kong on the other hand taxes only income derived from within its territory. Consequently, much inter-territorial investment in the region passes through Hong Kong instead of Singapore. Even Singapore-based companies prefer to pass their funds through Hong Kong for investment in third countries — especially Indonesia with which Singapore has no agreement to avoid double taxation — rather than make direct investments. Foreign income remitted to Singapore obviously cannot be unconditionally free of tax. What the Singapore government could do would be to allow full credit for tax suffered in a foreign country be given to income remitted and subject to tax in Singapore, provided that the tax

credit allowed does not exceed 40%. It is estimated that the amount of money floating around in Hong Kong is ten times that of Singapore [39]. Given this fact, Singapore lags far behind Hong Kong in its bid for premier financial status in Asia. Yet, much of the money in Hong Kong is short-term capital flows. This is the factor that could change the relative positions of the rivals quite rapidly. Singapore's emphasis has been on a much longer term than Hong Kong's. Thus its ability to supply the long-term capital market could give Singapore's financial institution a qualitative edge in the financial competition.

What else can the Singapore government do to promote the growth of Singapore as a leading financial center in Asia — as the New York or London or Zurich of the East? In order to emulate the examples of such great financial cities, Singapore could perhaps learn from their experiences. In the 1830's, New York ousted Philadelphia as the money metropolis of the U.S.A. because of its better situated harbor and its entrepot trade [29]. London is one of the largest ports in the world. Zurich's free gold market thrives on the fluctuations of world trade and currency exchange rates. Inevitably international trade pulls all the strings and its importance in world monetary dealings can hardly be overstated. As long as Singapore can maintain its excellent port services and facilities, there is no danger of a financial outflow from the island. In addition, the development

of Singapore's telecommunications will be a crucial factor in determining how much business continues to be done in the republic. Communications (except, of course, air and sea facilities) are probably the least efficient of services provided by Singapore. It often takes thirty minutes to get through to an international operator of the Telecommunications Authority of Singapore (TAS), let alone obtain an immediate connection with Europe during the hours that matter. If Hong Kong can provide faster links with Europe and New York, it may see a few irritated Asia-currency dealers from Singapore flock to its shores. Unless TAS improves its services fast, Singapore can expect to lose some of the important financial deals going around in the region. In any case, rapid communications is just one (although vital) of the many lubricants needed to ensure the smooth operation of a financial center. Several others include a foreign exchange market, a short-term money market, a free gold market and last but not least the people who participate in such activities, the international money brokers and discount houses. Already there is a thriving free gold market in Singapore, with the price being paid by the buyers generally higher than the free market prices in London, Zurich, Paris and Beirut, but slightly lower than the free market prices in the neighboring countries. Hence most of the gold sold on the Singapore market ends up in Indonesia, Vietnam, Laos and India. In the field of banking,

there are now 22 banks in Singapore licensed to participate in the Asian dollar market. The latest move to help Singapore acquire more international connections and expertise has been thegranting of "offshore" licenses to seven foreign banks from the U.S. and England. These banks will be required to concentrate on the Asia-currency market and foreign exchange transactions and will be prohibited from operating Singapore dollar accounts.

Whether or not Singapore succeeds in its attempt to become the region's leading financial center will largely depend on the growth of its Asian dollar market. The market will receive a boost if some Asian governments decide, as is considered likely, to switch a part of their foreign currency reserves held in the Euro-dollar market to the Asian dollar market as the latter gets more firmly established. Also if industrialists and other parties holding substantial funds in the Euro-dollar market could be "encouraged" to switch to the Asian dollar market, then Singapore would have it all made. The bait must be cast not only at the Asian branches of international giants such as Shell and Exon, but at such enterprises as Pertamina, the Soriano group of the Philippines, and the emerging ship-owners of the Asian mainland, such as Y.K.Pao. Singapore, being strategically located so near to the oil wells and refineries or Brunei and Indonesia, should be able to capitalize on natural attributes and widen its lead over Hong Kong and

Tokyo. The race has started but the distance still to be run may be gauged by the fact that a new regional bank for Asia which is about to be launched by Japanese and American interests will be registered in London, for taxation purposes, though its two centers of business operation will be Singapore and Hong Kong.

IV. FACING THE FUTURE

Can Singapore find a credible alternative to dependence upon entrepot trade? Clearly entrepot trade cannot form a stable, long-term source of income for Singapore. That it has long been a substantial contributor to Singapore's economic growth is scarcely an argument for continued reliance upon it. The rising tide of nationalism in the region augurs a period of attrition for the foreign middleman. The underlying fear of racial conflict will drive the governments of Malaysia and Indonesia to seek ways to reducing their dependence upon Singapore's port facilities. A decline in the volume of the island's entrepot trade would then be on the cards.

Singapore's one and only asset is manpower – skilled and unskilled. The government's industrialization program recognizes this fact and has consequently concentrated on aiding the many small fledgling industries to persevere, expand and export. The government's intervention and direct action in industry and commerce is confined to providing the infrastructure for development. Singapore is a good example of an economy which relies mainly on market forces and individual initiative for its development. As a free enterprise economy, the traditional policy of the government has been to avoid the direct ownership and control of industries and trade which would compete with the private sector. The

government intervenes only in areas where the risk for private enterprise is too high, or where the capital needed is too great, or where the social benefit is much greater than the private benefit. But in view of possible future developments in the region, the increasingly important role that industrialization would play is all too evident. This necessarily increases the government's concern for the success of the country's industrialization efforts. In the event of pressing and changing circumstances in which private enterprise cannot be expected to act, the government would have to step more directly into the industrial field. Compared with Hong Kong, Singapore's industrialization program is quite government-oriented; nevertheless, private enterprise remains the basic theme, supported or led by government action, as long as the situation does not warrant direct government intervention.

Although it is heartening to note that Singapore achieved an 11% real growth in the GNP in the past year, this growth rate fell below the expected 15% and the question is whether Singapore can maintain a 10% real growth rate in the future years. The Singapore Finance Minister thinks so, but his optimism on this point is conditional upon the ability of all Singaporeans to "pull together" to overcome adverse factors. And such factors are many. International inflationary conditions, monetary instability and economic stagnation are no longer mere threats on the horizon. They are

on Singapore. So is the energy crisis which has pushed up the price of crude oil four-fold, imposing burdens on the balance of payments of consumer nations. The accumulation by oil producers of massive foreign reserves can only distort the world monetary situation further. Moreover, if big oil consumers resort to private deals and protectionism to get over their problems, the economies of developing nations must suffer. Singapore cannot escape the consequences. It is anticipated that all these factors might very well produce an overall adverse balance of payments for Singapore this year, the first time in many years. Fortunately, the healthy state of Singapore's reserves (US $2,439 million) will stand her in good stead to weather the upcoming storms.

Not all the effects of the oil crisis need however be negative. The Arab countries' increasing reserves might lead to a capital flow into Singapore's developing financial center. There are also indications of possible accommodation and adjustment between oil consumers and producers, and of a new equilibrium between the prices of oil and of other goods and services. Internally, Singapore is sufficiently strong to grapple with a major economic crisis. The economy is diversified and can cope with setbacks in any one sector. The sturdiness of the manufacturing sector is a promising augury for the future. The value of domestic exports is rising and can be expected to improve more with

continued investment in high-technology industries. Full employment generated by industrialization will help to cushion the shock of recession or retrenchment.

Of much more immediate concern to the Singaporean, though, is the erosion of real income by inflation. The government cannot reduce public expenditure to alleviate inflation at the expense of economic growth. Development needs to be sustained. The government has however promised firm action short of price control against profiteering. In view of all the economic hardships facing the poor in Singapore, some may ask why Singapore has not opted for a subsidized way of life. The reasons are many. One principle which has enabled Singapore to survive and to thrive is the principle of not encouraging passengers. To spread the belief in heavier and heavier subsidies to cushion the adverse effects of world economic forces on the people's lives, means encouraging and making more people into passengers. Nothing is more likely to ensure Singapore's bankruptcy and disintegration than featherbedding and subsidies in pursuit of equality, not of opportunities, but of rewards. Singapore makes its living through organized servicing and production, not with the help of the sun and rain to produce food and agricultural commodities. So when the financial rot sets in and the firm framework which rewards effort and enterprise gives way, there are no soft rice fields to cushion the hard fall. And the

fall will be most painful for the poor and unskilled. The basic formula for Singapore's continued success, without raw materials, will be hard work. There is no magic strategy for economic growth which can feed the people without work. More important than the fight against inflation is the struggle to raise both skills and productivity.

The future of the city-state of Singapore will be largely determined by events occurring outside its boundaries, in the surrounding Malay archipelago as well as in the developed nations of the world. The Republic can do little more than wait. Should firm determination and hard work prove inadequate in the face of adversity, then the very survival of Singapore in Southeast Asia will be threatened.

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